INTRODUCTION TO BIOLOGY

TEST 1

1. Removal or degradation of pollutants by the living organisms is called?

A: Integrated management
B: Environmental control
C: Eugenics
D: Bioremediation

2. Kidney is an example of?

A: Tissue
B: Organ
C: Cellular system
D: Organism

3. Which branch of biology deals with the structure of cells and their organelles?

A: Microbiology
B: Molecular biology
C: Parasitology
D: Human biology

4. Which of the following shows the correct sequence?

A: Observation -> Hypothesis ->Law -> Theory
B: Hypothesis -> Observation -> Theory -> Law
C: Hypothesis -> Observation -> Law -> Theory
D: Observation -> Hypothesis -> Theory -> Law

5. Population of different species living in the same habitat form a?

A: City
B: Country
C: Population
D: Community

6. Which of the following is a correct order?

A: Cell -> Organ -> Tissue -> Organism
B: Tissue -> Organ -> Cell -> Organism
C: Cell -> Tissue -> Organ -> Organism
D: Cell -> Tissue -> Organism -> Organ

7. A tentative explanation of observations is called?

A: Reasoning
B: Hypothesis
C: Theory
D: Law

8. Which component of the cell is concerned with cell secretion?

A: Plasma Membrane
B: Golgi complex
C: Cytoskeleton
D: Mitochondria

9. Which branch of biology deals with the study of organism in relation to its environment?

- A: Freshwater biology
- B: Marine biology
- C: Environmental biology
- D: Biotechnology

10. Starch is an example of?

- A: Micromolecule
- B: Macromolecule
- C: Mid level molecule
- D: Human molecule

11. Genetically identical copies of organisms are called?

- A: Twins
- B: Transgenics
- C: Clones
- D: Identicals

12. Biotechnology deals with which of the following?

- A: Use of living organisms in various processes.
- B: Study of protozoa.
- C: Water bodies in oceans.
- D: Evolution.

13. Study of life in sea and oceans is called?

- A: Marine biology
- B: Freshwater biology
- C: Sea biology
- D: Microbiology

14. Necessity of a nutrient to a plant is tested through which of the following methods?

- A: Hydroponic culture.
- B: Hydrophobic culture.
- C: Integrated disease management.
- D: Biological control.

15. Polio shots are an example of what type of disease control?

- A: Drug treatment
- B: Gene therapy
- C: Immunization
- D: Preventive measures

16. Fresh water biology is the study of?

- A: Organisms living in fresh water.
- B: Physical parameters of freshwater bodies.
- C: Chemical parameters of fresh water bodies.
- D: All of the above.

17. Pasteurization is used for which of the following?

- A: Improving milk nutrients
- B: Purifying milk
- C: Preserving milk
- D: All of the above.

18. Population of different species (plants and animals) living at the same habitate in the same time form a:

A: Ecosystem
B: Community
C: Biosphere
D: Microsystem

TEST 2

1. **Which of the following is not a viral disease?**

A: Polio
B: Tetanus
C: Small pox
D: Mumps

2. **Pasteurization technique is widely used for preservation of:**

A: water
B: Milk products
C: Meat
D: Vaccines

3. **Which of the following is used in treating cancer?**

Antibiotics

Radiotherapy

Chemotherapy

A: ii only
B: iii only
C: ii and iii only
D: i, ii and iii

4. **Clones can be produced by which of the following techniques?**

A: Asexual reproduction
B: Tissue culture
C: Both of A and B
D: None of the above.

5. **Which of the following is true about antibiotics?**

A: They kill viruses.
B: They kill bacteria.
C: They kill both viruses and bacteria.
D: They cannot kill viruses and bacteria.

6. **The production of genetically identical copies of organisms by asexual reproduction is called:**

A: Genetic engineering
B: Cloning
C: Integrated disease management
D: Hydroponic culture technique

7. **The part of body which forms structural and functional unit and is composed of more than one tissue is called:**

A: Organelle
B: Organ
C: Organ system
D: Whole organism

8. A method in which pests are destroyed by using some living organisms or natural enemies is called:

A: Integrated disease management
B: Bilogical control
C: Pasteurization
D: Genetic engineering

9. Which of the following statement is correct?

A: Complexity of organ systems in the animals is more than that in the plants.
B: Complexity of organ systems in the animals is less than that in the plants.
C: Complexity of organ systems in the animals is same as that in the plants.
D: Complexity of organ systems in the animals may be more or less than that in the plants.

10. Which of the following has the highest number of known species?

A: Insects
B: Animals
C: Plants
D: Protozoa

11. Which of the following statement is true?

A: Prokaryotes have limited number of organelles in their cytoplasm.
B: Prokaryotes have a large number of organelles in their cytoplasm.
C: Eukaryotes have limited number of organelles in their cytoplasm.
D: Both Prokaryotes and Eukaryotes have roughly equal number of organelles in their cells.

12. Irrefutable theory is called?

A: Observation
B: Hypothesis
C: Deduction
D: Law

13. First vaccination was developed using which of the following virus?

A: Small pox virus
B: Cowpox virus
C: Polio virus
D: Yellow fever virus

14. Use of bacteria in milk products is an example of which branch of biology?

A: Microbiology
B: Biotechnology
C: Parasitology
D: Molecular biology

15. Chemicals produced by microoragnisms which are capable of destroying the growth of microbes are called:

A: Antigen
B: Biocidal
C: Antibiotics
D: Antiseptics

16. Communal life of humans is studied in which branch of biology?

A: Human biology
B: Social biology
C: Environmental biology
D: All of the above

17. **Roughly how many species are currently known to science?**

A: 500,000
B: 900,000
C: 2,000,000
D: 2,500,000

18. **The study of how the H1N1 virus is transmitted is done under which branch of biology?**

A: Microbiology
B: Molecular biology
C: Parasitology
D: Biotechnology

19. **Which of the following is the most accurate definition of population?**

A: A group of living organisms living in the same place at different times.
B: A group of living organisms living in the same place at the same time.
C: A group of living organisms of the same species living in the same place at the same time.
D: A group of humans living in the same place at the same time.

20. **Which of the following carbon containing molecule is an example of inorganic compound?**

A: CO_2
B: C_6H_6
C: $C_6H_{12}O_6$
D: They are all organic as they all contain C.

TEST 3

1. **A large community determined by tropical rain forest is an example of?**

A: Population
B: Community
C: Species
D: Biome

2. **"All animals have four legs. So any living organism with four legs is an animal." The reasoning is an example of?**

A: Hypothesis
B: Deductive reasoning
C: Inductive reasoning
D: Wrong reasoning

3. **An unbroken series of species arranged from ancestor to descendant is called?**

A: Heredity linkage
B: Biome lineage
C: Evolution series
D: Phyletic lineage

4. **Which of the following statement is most accurate?**

A: Animals may reproduce naturally by cloning.
B: Plants never reproduce naturally by cloning.
C: Insects never reproduce naturally by cloning.
D: Insects and plants may reproduce naturally by cloning.

5. **Morphology is a sub-branch of which of the following?**

A: Social biology

B: Biotechnology

C: Microbiology

D: Human biology

6. **A large regional community primarily determined by climate is called?**

A: Population

B: Community

C: Biome

D: All of the above

7. **Hammer fish was brought into the Michigan lake to eat up fast growing algae. This is an example of which of the following?**

A: Integrated disease management

B: Biological control

C: Hydrophonic control

D: Hydrophobic control

8. **Which six elements account for 99% of the human body mass?**

A: O, C, H, Ca, P, Na

B: O, C, H, Ca, N, Na

C: O, C, H, N, Na, I

D: O, C, H, N, Ca, P

9. **Jigambu is a strange viral infection. Which of the following treatment / prevention would you recommend against Jigambu?**

A: Antibiotics

B: Chemotherapy

C: Radio therapy

D: Vaccination

10. **The number of commonly occuring bioelements is?**

A: 16

B: 20

C: 25

D: 28

11. **In gene therapy, normal genes are inserted into the host through which of the following?**

A: Bone marrow cells

B: Red blood cells

C: White blood cells

D: Muscle tissues

12. **"Eating greasy food cause pimples". This is an example of?**

A: Hypothesis

B: Theory

C: Law

D: None of the above

13. **Which of the following is the most abundant element in the human body?**

A: Oxygen

B: Carbon

C: Hydroden

D: Calcium

14. **Which of the following is related to cloning?**

Replacement of the nucleus of an early embryo with a new nucleus of the same species

Division of early embryo into two or more embryos

Replacing genes in the host cell

A: i and ii only

B: i and iii only

C: ii and iii only

D: i, ii and iii

15. "Crocodile is a reptile and can survive in water. So all reptiles can survive in water." This statement is an example of?

A: Theory

B: Deductive reasoning

C: Inductive reasoning

D: Wrong reasoning

TEST 4

1. Microbiology is a branch of biology that deals with?

A: Cells and their organelles.

B: Interaction between organism and its organic and inorganic environment.

C: Study of parasites.

D: Study of protozoa, bacteria, viruses etc.

2. What kind of association is seen in lichens?

A: Commensalism

B: Parasitism

C: Mutualism

D: Predation

CELL BIOLOGY
TEST 1

1. The smallest independent unit of life is known as:

A: Cell

B: Bacterial colony

C: Chloroplast

D: DNA

2. Which of the following are colorless?

A: Chloroplasts

B: Chlorophyll

C: Chromoplasts

D: Leucoplasts

3. A chromosome is composed of which of the following?

- A: DNA only
- B: DNA and RNA
- C: DNA, RNA and Proteins
- D: DNA and Proteins

4. **What is cytokinesis ?**

- A: Separation of chromosomes
- B: Division of nucleus
- C: Division of whole cell
- D: Movement of whole cell

5. **Plasma membrane is chemically composed of:**

- A: Lipids and proteins
- B: Lipids and carbohydrates
- C: Phospholipids only
- D: Glycoproteins

6. **Chiasmata formation takes place during the process which is known as?**

- A: Crossing over
- B: Attachment
- C: Pairing
- D: Leptotene

7. **Uncontrolled division occurs in which cells?**

- A: Early embryonic cells
- B: Cancer cells
- C: Healing cells
- D: Growth and development cells

8. **As per early cell theorists, which of the following was not a basic part of the cell?**

- A: Nucleus
- B: Cytoplasm
- C: Plasma membrane
- D: Cell wall

9. **Peptidoglycan and murein is special or distinctive feature of cell wall in :**

- A: Algae
- B: Fungi
- C: Bacteria
- D: Plants

10. **Cell membranes take in materials by infolding through a process called?**

- A: Active transport
- B: Passive transport
- C: Selective permitivity
- D: Endocytosis

11. **Which of the following structures is ansent in higher plants and found in animals cells?**

- A: Cytoskeleton
- B: Mitochondria
- C: Cytoplasm
- D: Centriole

12. **Which of the following is a prokaryote?**

- A: Bacteria
- B: Fungi
- C: Protista
- D: Plants

13. Identify the wrong statment regarding crossing over ?

A: It takes place during pachytene.
B: Reshuffling of genetic material takes place.
C: Sister chromatids exchange their segments.
D: Involves chiasmata formation.

14. Animal and plant cells are distinguished by which of the following feature?

A: Nucleus
B: Cell wall
C: Mitochondrion
D: Golgi apparatus

15. What is the number of chromosomes in humans?

A: 42
B: 44
C: 46
D: 48

16. Prophase I in meiosis is furthure subdivide into how many phases ?

A: 3
B: 4
C: 5
D: 6

17. In mitochondria, a small knob like structures called F particles are present in :

A: Outer membrane
B: Inner membrane
C: Outer compartment
D: Inner compartment

18. What is the primary difference between Prokaryotes and Eukaryotes?

A: Prokaryotes have cell wall and Eukaryotes lack it
B: Prokaryotes have a tail and Eukaryotes lack it
C: Prokaryotes do not have mitochondiron while Eukaryotes have it
D: Prokaryotes do not have distint nuclues and Eukaryotes have a distint nuclues.

19. Which of the following is the wrong statment regarding apoptosis ?

A: It take place in absence of survival signals.
B: Content of cell are not relased in apoptosis.
C: It is associated with inflamation.
D: It involve the death of cell during embroygenesis.

20. Which one of the following is a down syndrome ?

A: Trisomy 21
B: Trisomy 13
C: Trisomy 18
D: Trisomy 22

TEST 2

1. What is the main difference between the molecules of chlorophyll and haem?

- A: Chlorophyll has potassium while haem has iron as the central atom.
- B: Chlorophyll has magnesium while haem has calcium as the central atom.
- C: Chlorophyll has iron while haem has potassium as the central atom.
- D: Chlorophyll has magnesium while haem has iron as the central atom.

2. Which scientist discovered the presence of nucleus in the cell?

- A: Robert Brown
- B: Lorenz Oken
- C: Robert Hooke
- D: Jean Baptist

3. Cell wall has how many layers?

- A: 2
- B: 3
- C: 4
- D: 5

4. The _____________ model of plasma membrane suggests that protein are embedded in lipid bilayer:

- A: Unit membrane
- B: Ultracentrifuge
- C: Permeable
- D: Fluid mosaic

5. The inner foldings of mitochondria are called?

- A: Microfilaments
- B: Cisternae
- C: Cristae
- D: Grana

6. Cell membrane is chemically composed of which of the following?

- A: Lipids and carbohydrates
- B: Lipids and proteins
- C: Proteins and carbohydrates
- D: Proteins only

7. Separation of homologous chromosomes occurs in which one of the following phase of mitosis?

- A: Prophase
- B: Metaphase
- C: Anaphase
- D: Telophase

8. In which phase of cell division, the metabolic activity of nucleus is high?

- A: Mitosis
- B: Meiosis
- C: Interphase
- D: Cell cycle

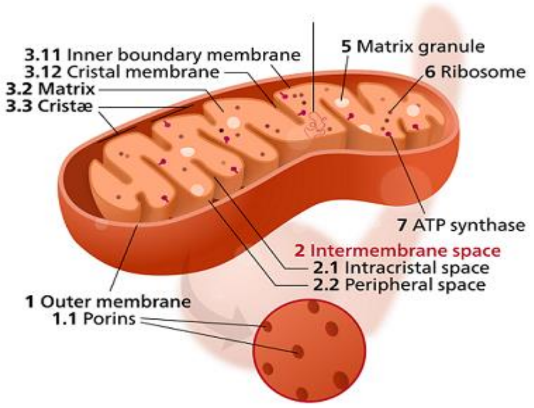
9. Plastids in the plant cells have how many types?

- A: 2
- B: 3
- C: 4
- D: 5

10. During metaphase, what number of fibers each kinetochore gets ?

- A: Two fibers from each poles
- B: Two fibers one from each pole
- C: One fiber from single pole
- D: Variable number of fibers

11. **The following figure show which cell organelle?**



A: Mitochondria
B: Vacuole
C: Endoplasmic Reticulum
D: Gogi apparatus

12. **Cell theory was established based on the work by which of the following scientists?**

A: Robert Brown and Robert Hooke
B: Theodor Schwann and Schleiden
C: Lorenz Oken
D: Jean Baptist

13. **Which organelle is bounded by two membranes?**

A: Ribosomes
B: Mitochondrion
C: Lysosome
D: Nucleolus

14. **The interior of chloroplast is divided into heterogenous structure, embedded in matrix , known as ?**

A: Grana
B: Stroma
C: Thylakoid
D: Cisternae

15. **Identify the worng statment regarding meiosis?**

A: Number of chromosomes reduce to haif.
B: It take palce in haploid cells.
C: Four daughter cells are produced after meiosis.
D: It take place during spore formation in plants.

16. **Ribosomes are assembled in which part of the cell?**

A: Gogi apparatus
B: Endoplasmic reticulum
C: Mitochondrion
D: Nucleolus

17. **What is the approximate duration of G_1 phase in the human cell cycle ?**

A: 8 hours
B: 9 hours
C: 10 hours
D: 11 hours

18. **In which stage of interphase, there is increase in cell size and many biochemicals are formed?**

A: G_1 phase

B: G_2 phase

C: S phase

D: C phase

19. **Centrioles are made up of ___________ microtubules.**

A: 9

B: 3

C: 12

D: 27

20. **What are the changes that takes place during telophase ?**

A: Unfolding of chromosomes.

B: Mitotic apparatus disorganizes nuclear membrane.

C: Reorganization of nuceloli.

D: All of the above.

TEST 3

1. **Which of the following organelle play an important role in the formation of cilia?**

A: Cytoskeleton

B: Ribosomes

C: Lysosomes

D: Centriole

2. **Ribosomes exist in two forms, either attached to RER or freely dispersed in the?**

A: Tonoplast

B: Golgi bodies

C: SER

D: Cytoplasm

3. **During cytokinesis a contractile ring is formed from which of the following?**

A: Actin and Tubulin.

B: Myosin and Actin.

C: Tubulin and Myosin

D: Actin only

4. **Microtubules are made up of which one of the following protein ?**

A: Actin

B: Tubulin

C: Myosin

D: All of above

5. **Which of the following syndrome's involves the missing of one X chromosome ?**

A: Down

B: Turner

C: Jacobs

D: Patau

6. **What is the main function of parenchymatous cells in plants?**

A: Transport water

B: Translocate food

C: Provide support

D: Store surplus food

7. **Which of the following in NOT a tenet of cell theory?**

A: All living organisms are composed of one or more cells.

B: The cell is the most basic unit of life.

C: All cells arise from pre-existing, living cells.

D: Individual cells have a sexual reproduction.

8. Which of the following is termed as the factory of protein synthesis?

A: Nucleolus

B: Rough endoplasmic reticulum

C: Ribosomes

D: Mitochondrion

9. Identify the correct statement regarding prophase?

A: Nuclear envelop disappears and nucleoli becomes more prominent.

B: Nucleoli disappaers and mitotic apparatus becomes disorganised.

C: Nuclear envelop disappears and cytoplasm becomes less viscous.

D: Mitotic apparatus is organised and cytoplasm become more viscous.

10. Prokaryotic cell wall has which of the following major difference from the other cell walls?

A: It lacks chitin.

B: It lacks waxes.

C: It lacks lignin.

D: It lacks cellulose.

11. Which of the following organelle is present in plant cells but not in the animal cells?

A: Peroxisome

B: Mitochondrion

C: Golgi apparatus

D: Glyoxysomes

12. Mental retardation, short stature, broad faces and squint eyes are the symptoms of ?

A: Down's syndrome

B: Klinefelter's syndrome

C: Turner's syndrome

D: XYZ syndrome

13. During which phase of meiosis paired chromosomes repel each other and begin to separate ?

A: Leptotene

B: Zygotene

C: Pachytene

D: Diplotene

14. Which is /are the functions of mitotic apparatus ?

A: To capture chromosomes

B: To align chromosomes

C: To separate chromosomes

D: All of the above

15. Which of the following is not a basic component of the chloroplast?

A: Envelope

B: Grana

C: Stroma

D: Thylakoid

16. Which of the following shall most easily pass through the plasma membrane?

A: Lipid soluble substances

B: Ions

C: Lipids insoluble substance

D: Gas molecules

17. Extensive metabolic activity takes place in which one of the following phase of the cell cycle ?

A: G_1 phase

B: G_o phase

C: G_2 phase

D: S phase

18. Which of the following is responsible for phagocytosis in the cells?

A: Gogi apparatus

B: Lysosomes

C: Ribosomes

D: Rough ER

19. What is the main purpose of Sclerenchymatous cells in plants?

A: Conduct water

B: Translocate food

C: Give support

D: Store surplus food

20. How many microtubules are present in the cylindrical array of centriole?

A: 5

B: 7

C: 9

D: 11

TEST 4

1. The inner membrane of mitochondria is folded to form finger like structure called ?

A: Cristae

B: Vesicle

C: Matrix

D: Cisternae

2. In Down's syndrome which one of the following pair fails to seggregate?

A: 7

B: 19

C: 18

D: 21

3. Which one of the following microtubules get attached to chromosome during karyokinesis?

A: Kinetochore microtubules

B: Polar microtubules

C: Astral microtubules

D: All of the above

4. Which of the following statement is true?

A: Only active transport requires energy.

B: Only passive transport requires energy.

C: Both active and passive transport required energy.

D: Neither active nor passive transport requires energy.

5. Which of the following are present in the underground parts of the plant?

A: Leucoplasts

B: Chromoplasts

C: Chloroplasts

D: None of the above.

6. **Which of the following statement is true?**

- A: Prokaryotes have smaller sized ribosomes as compared to eukaryotes.
- B: Prokaryotes have larger sized ribosomes as compared to eukaryotes.
- C: Prokaryotes and eukaryotes have equal sized ribosomes.
- D: There is no relationship between the ribosomes of prokaryotes and eukaryotes.

7. **Which of the following is not a characteristic of malignent cell ?**

- A: High nucleus to cytoplasmic ratio.
- B: Prominent nucleoli.
- C: Highly differentiated.
- D: Large number of mitosis.

8. **The function of nucleolus is to make:**

- A: Rdna
- B: RNA
- C: Ribosomes
- D: Chromosomes

9. **The most critical phase of mitosis which ensures equal distribution of chromatids in daughter cells is :**

- A: Prophase
- B: Metaphase
- C: Anaphase
- D: Telophase

10. **Genomic variations and modifications results from which of the following?**

- A: Synapsis and crossing over.
- B: Synapsis and chromosomal non-disjunction.
- C: Crossing over and random assortment of chromosomes.
- D: Chromosomal non-disjunction and breakage.

11. **44 autosomes + XXY is a genotype of which one of the following syndrome ?**

- A: Down
- B: Patau
- C: Klinefelter
- D: Jacobs

12. **Endoplasmic recticulum contains a system of flattened membrane bounded sacs which are named as:**

- A: Cristae
- B: Marks
- C: Tubules
- D: Cisternae

13. **Golgi apparatus converts proteins and lipids into glycoproteins and glycolipids by adding?**

- A: Minerals
- B: Mg^{+2} ions
- C: Carbohydrates
- D: All of the above.

14. **Identify the correct statement regarding mitosis in plants ?**

- A: Spindle fibers arise from centriols.
- B: A contractile rings is formed during cytokinesis.

C: Shapes of plant cell does not change greatly.

D: Phragmoplast does not get formed.

15. How many triplets of microtubules are present in a centriole?

A: 10

B: 8

C: 9

D: 7

16. Granulocytes are :

A: Monocytes, eosinophils, basophils

B: Eosinophils, basophils, neutrophils

C: Basophils, Macrophages, neutrophils

D: Monocytes, macrophages , basophils

17. By using histologic stain of DNA, a network of very fine threads can be visualized during the prophase of mitosis. The network is called?

A: Mitotic apparatus

B: Chromosomes

C: Chromatin

D: Hyperchromasia

18. Which of the following imparts colors to the plants other than green?

A: Chloroplasts

B: Leucoplasts

C: Chromoplasts

D: All of the above.

19. How many sets of microtubules arise from each pair of centriole during karyokinesis?

A: 2

B: 3

C: 4

D: 5

20. Plastids are only found in the:

A: Animals

B: Animals and plants

C: Plants

D: Viruses

BIOLOGICAL MOLECULES
TEST 1

1. The branch of biology that deals with the study of inorganic and organic molecules that make up the body of living orgnism is called?

A: Biotechnology

B: Anatomy

C: Biomechanics

D: Biochemistry

2. Which of the following biological molecule is the richest source of energy? (comparing gram to gram)

A: Carbohydrates

B: Fats

C: Minerals

D: Protein

3. **About 170 types amino acids are known, however, most of the proteins are made up of _____ types of amino acids?**

A: 108
B: 64
C: 32
D: 20

4. **The covalent bond formed between two monosacchrides is called ?**

A: Glycosidic bond
B: Hydrogen bond
C: Peptide bond
D: Disulphide bond

5. **Which of these is not a nucleotide base found in the DNA?**

A: Uracil
B: Adenine
C: Guanine
D: Thymine

6. **Energy absorbed in order to change water from liquid to gas is called?**

A: Latent heat of fusion
B: High surface tension
C: Heat of vaporization
D: High heat capacity

7. **What is the valency of carbon?**

A: Monovalent.
B: Bivalent.
C: Trivalent.
D: Tetravalent.

8. **Which of the following is true about a chemical "buffer"?**

A: It can donate a hydrogen+ when solution becomes too basic
B: It can absorb hydrogen+ when solution becomes too acidic
C: It is utilized in living systems to maintain correct pH
D: All of the above are correct

9. **In an amino acid in which the R-group is a hydrogen, the amino acid will be ?**

A: Alanine
B: Glycine
C: Leusine
D: Valine

10. **A fatty acid is a compound having a chain of carbon atoms with?**

A: An acid group at both ends
B: An acid group at one end
C: An amino group
D: An amino group at both ends

11. **Which class of molecules is the major component of the cell membrane?**

A: Phospholipids
B: Cellulose
C: Proteins
D: Triglycerides

12. **The sum of all the chemical reaction that occurs in the body is known as?**

A: Anabolism
B: Metabolism

C: Catabolism
D: Canabalism

13. **Dehydration and hydrolysis reactions involve removing or adding which of the following to macromolecule subunits?**

A: C and H
B: CH and NH_2
C: -COOH and H
D: OH and H

14. **Which of the following base pair combination is absent in DNA?**

A: A-T
B: T-A
C: C-G
D: A-U

15. **When amino acids in a polypeptide chain are arranged in a spiral manner, it is called?**

A: Primary structure
B: Secondary structure
C: Tertiary structure
D: Quaternary structure

16. **The amount of heat that must be absorbed or lost by 1g of a substance to change its temperature by 1 C° is known as?**

A: Specific heat
B: Heat of vaporization
C: Enthalpy
D: Entropy

17. **One of the pyrimidine bases absent in DNA is?**

A: Uracil
B: Thymine
C: Cytosine
D: Adenine

18. **Which of the following is an organic molecule?**

A: $CaCO_3$
B: CO_2
C: $C_6H_{12}O_6$
D: All of the above.

19. **Fatty acids are the organic compounds containing hydrogen, oxygen and one of the following are ?**

A: Carboxylic
B: Amino
C: Acyl
D: Sucrose

20. **Electrolytes that release hydrogen ions in water are called?**

A: Acids
B: Bases
C: Amphoterics
D: Lipids

TEST 2

1. **What kind of sugar is found in the RNA?**

A: Fructose
B: Galactose
C: Deoxyribose
D: Ribose

2. **Natural monosaccharide contain how many carbon atoms?**

- A: 3-5
- B: 4-8
- C: 3-7
- D: 5-13

3. **Amino acid in which R-group is hydrogen is:**

- A: Alanine
- B: Valine
- C: Leucine
- D: Glycine

4. **The bond formed between glucose and fructose to form sucrose is ?**

- A: 1,4 glycosidic linkage
- B: 1,2 glycosidic linkage
- C: 1,6 glycosidic linkage
- D: 1,3 glycosidic linkage

5. **The synthesis of RNA from the DNA is called?**

- A: Transcription.
- B: Replication.
- C: Duplication.
- D: Transformation.

6. **Nucleic acids are the polymers composed of monomer units known as?**

- A: Amino acids
- B: Nucleosides
- C: Nucleotides
- D: Nitrogenous bases

7. **Which product is the energy storage in the vertebrate, liver and muscles of the animals?**

- A: Cellulose
- B: Chitin
- C: Glycogen
- D: Fructose

8. **Which of the following is an unsaturated fatty acid?**

- A: Butyric acid.
- B: Palmitic acid.
- C: Acetic acid.
- D: Oleic acid

9. **Which of the following statements about amino acids is correct?**

- A: Amino acids are classified according to the structures and properties of their side chains.
- B: Amino acids are uncharged at neutral pH.
- C: Amino acids in proteins are mainly in the D-configuration.
- D: Twenty four amino acids are commonly used in protein synthesis.

10. **Which of the following is a keto sugar?**

- A: Glyceraldehyde
- B: Ribose
- C: Dihydroxy acetone
- D: Glucose

11. **Lipids are found in the human body as which of the following?**

- A: Triglyceride
- B: Phospholipid

C: Cholestrol

D: All of these

12. Each of the 20 naturally occuring amino acids has a different?

A: NH_2 group

B: -COOH group

C: -OH group

D: R group

13. Lactose is present in which of the following?

A: Sugar cane

B: Milk

C: Egg

D: Fruits

14. Which type of RNA acts as a machinery for the synthesis of proteins?

A: mRNA

B: tRNA

C: rRNA

D: All of the above.

15. The two chains of DNA are held together by what type of bonds?

A: Ionic bonds

B: Colavent bonds

C: Disulphide bonds

D: Hydrogen bonds

16. The step of protein synthesis in which RNA is synthesized by the DNA is called?

A: Transduction

B: Translation

C: Transformation

D: Transcription

17. Which of the following is the most abundant molecule in the living cells?

A: Lipids

B: Carbohydrates

C: Water

D: Proteins

18. Myosin is a ___________ type of protein.

A: Intermediate

B: Simple

C: Globular

D: Fibrous

19. The four nitrogenous bases which form the code words for DNA language are?

A: ACTU

B: UTAC

C: AGTU

D: AGCT

20. _______________ is most abundant in nature.

A: Cellulose

B: Waxes

C: Glycerole

D: Starch

TEST 3

1. Which of the following type of RNAs is the major portion of RNA in the cell?

A: mRNA

B: tRNA

C: rRNA

D: They are all in the same quantity.

2. Which of the following is true about haemoglobin?

A: It is a globular protein.

B: It has quaternary level of protein structure.

C: It has haem units.

D: All of the above.

3. Typically a cell has how many tRNAs?

A: 5

B: 10

C: 15

D: 20

4. Which of the following is an asymmetrical lipid molecules with a hydrophilic head and a hydrophobic tail, with a phosphate group in place of one of the three fatty acid chains?

A: Wax

B: Terpenoid

C: Steroid

D: Phospholipid

5. Which of the following is not a function of lipids?

A: Long term energy storage.

B: Insulation against atmospheric heat and cold.

C: Water proofing.

D: Enzymes

6. Which one of the following carbohydrates is the sweetest in taste?

A: Glucose

B: Fructose

C: Lactose

D: Maltose

7. Which one of the following types of bond is principally concerned in maintaining the alpha-helix shape of secondary protein structure?

A: Disulphide bonds.

B: Ester bonds.

C: Hydrogen bonds.

D: Peptide bonds.

8. The number and sequence of amino acids in the proteins refers to which of the following structure?

A: Primary structure**.**

B: Secondary structure.

C: Tertiary structure.

D: Quaternary structure.

9. Acylglycerols like fats and oils are esters formed by condensation reaction between:

A: Fatty acids and water

B: Fatty acids and glucose

C: Fatty acids and alcohol

D: Fatty acids and phosphates

10. Carbon combines with nitrogen in amino acid linkages to form which of the following?

A: Ester bonds

B: Glycosidic bonds

C: Peptide bonds

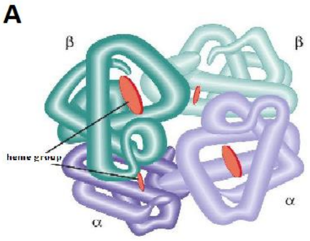
D: Hydrogen bonds

11. **The combination of a pentose sugar with a base results in a compound known as ?**

A: Nucleotide
B: Nucleic acid
C: Nucleoside
D: Polynucleotide

12. **Which of the following is the primary structure of protein?**

A



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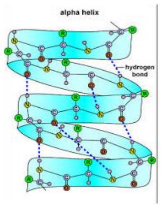

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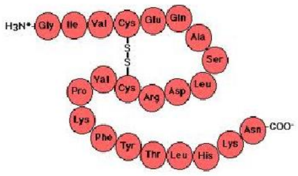
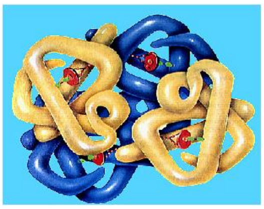


D



A: A
B: B
C: C
D: D

13. **Which one are intermediate between respiration and photosynthesis both?**

A: Glyceraldehyde and Dihydroxyacetone
B: Ribose and Heptolose
C: Glucose and Glactose
D: Fructose and Ribulose

14. **Which of the following statement is correct?**

A: DNA is only present in the nuclei of the cells.
B: RNA is only present in the nuclei of the cells.
C: DNA occurs in chromosomes while RNA is present in nucleolus, ribosomes and cytosol.
D: RNA occurs in chromosomes while DNA is present in nucleolus, ribosomes and cytosol.

15. **The bond formed between carboxylic acid and alcohol is called?**

A: Ester bond
B: Amide bond
C: Phosphate bond
D: Ionic bond

16. **Which disaccharide is found in the sugar cane?**

A: Maltose
B: Sucrose
C: Lactose
D: Isomaltose

17. **Which bond is present in the tertiary structure of proteins?**

A: Ionic Bond
B: Hydrogen bond.
C: Disulfide bond.
D: All of the above.

18. Which one of the following is not a monosaccharide?

A: Glyceraldehyde.
B: Ribose.
C: Lactose.
D: Glucose.

19. Which of the following is not a monosaccharide?

A: Sucrose.
B: Maltose
C: Lactose.
D: All of the above.

20. The lipids made up of simple repeating isoprenoid units are called?

A: Phospholipids
B: Acylglycerols
C: Waxes
D: Terpenoids

TEST 4

1. Which of the following is an unsaturated fatty acid?

A: Acetic acid
B: Butyric acid
C: Palmitic acid
D: Oelic acid

2. Which of the following is purine?

A: Cytosine
B: Thymine
C: Uracil
D: Guanine

3. The most abundant carbohydrate in the nature is?

A: Glycogen
B: Chitin
C: Lignin
D: Cellulose

4. Which of the following lipids is a mixture of long chain alkanes with odd number of Carbons and alcohols, ketones and esters?

A: Acylglycerols
B: Terpenoids
C: Waxes
D: Phospholipids

5. Steroids are classified as?

A: Carbohydrates
B: Lipids
C: Proteins
D: Nucleic acids

6. Animals obtain carbohydrates mainly from which of the following?

A: Starch
B: Glucose.
C: Glycogen.
D: Sucrose.

7. What is the difference between the two types of starch, amylose and amylopectin?

A: Amylose starches have unbranched chains of glucose and amylopectin starches have branched chains.

B: Amylose starches are soluble in hot water and amylopectin starches are insoluble.

C: Amylose starches have chains of glucose and amylopectin starches have chains of fructose.

D: Both A and B.

8. How many nitrogenous bases are there in total for the nucleic acids?

A: Four
B: Five
C: Six
D: Seven

9. Which of the following shows a monosaccharide, a disaccharide and a polysaccharide in the sequence?

A: Starch ; Glucose ; Sucrose
B: Starch ; Sucrose; Glucose
C: Sucrose; Glucose ; Starch
D: Glucose; Sucrose; Starch

10. Which one is an example of unsaturated fatty acids :

A: Butyric acid
B: Oleic acid
C: Palmitic acid
D: Acetic acid

11. The primary structure of protein is the?

A: Twisting and turning of the polypeptide.

B: Number and sequence of amino acids in the protein molecule.

C: Specific orientation of polypeptide in space.

D: Both A and B

12. tRNA transfer which of the following?

A: Lipids
B: Carbohydrates
C: Amino acids
D: All of the above.

13. Which form of RNA delivers the information from DNA to be used in making a protein?

A: Messenger RNA
B: Ribosomal RNA
C: Transfer RNA
D: All options are correct.

14. Carbohydrates are organic molecules and contain three elements:

A: Carbon,water and oxygen
B: Carbon,hydrogen,oxygen
C: Carbon,sulphur,hydrogen
D: Carbon,calcium, hydrogen

15. Monosachride are major compoenents of :

A: DNA, ATP, Ribulose bisphophate and cysteine
B: DNA, NAD and Insulin
C: DNA, NADP, ATP and ribulose bisphosphate
D: DNA, RNA and myosin

16. When a protein undergoes a hydrolysis reaction the end products are?

A: Amino acids
B: Monosaccharides
C: Fatty acids
D: Nucleotides

17. The covalent bond between two monosaccharides is called?

A: Peptide bond.
B: Covalent bond.
C: Glycosidic bond.
D: Ester bond.

18. Which of the structures in the list includes all others in the list?

A: Nucleic acid
B: Nucleotide
C: Purine
D: Nitrogenous base

19. The most abundant compound in the living orgnisms that makes up the two third of the weight of the adults is?

A: Water
B: Carbohydrates
C: Lipids
D: Proteins

20. Which one of the following is called the medium of life?

A: Water.
B: Lymph.
C: Blood.
D: Carbon.

ENZYMES
TEST 1

1. All coenzymes are derived from?

A: Proteins
B: Carbohydrates
C: Metal ions
D: Vitamins

2. All coenzymes are derived from:

A: Proteins
B: Nucleic acid
C: Vitamins
D: Carbohydrates

3. Enzymes increase the rate of reaction by ?

A: Increasing temperature
B: Decreasing pH
C: Decreasing activation energy
D: Increasing activation energy

4. Which molecular straucture of enzyme is essential for activity of enzyme?

A: Quaternary structure
B: Primary structure
C: Secondary structure
D: Tertiary structure

5. Which molecular straucture of enzyme is essential for activity of enzyme?

A: Quaternary structure
B: Primary structure
C: Secondary structure
D: Tertiary structure

6. **Which one of the following is a competitive inhibitor?**

- A: Glucose
- B: Fumerate
- C: Succinic acid
- D: Malonate

7. **Optimum temperature for most of the human enzymes is?**

- A: 37 degree centigrades
- B: 41 degree centigrades
- C: 45 degree centigrades
- D: 25 degree centigrade

8. **Enzymes are primarily?**

- A: Proteins
- B: Lipids
- C: Carbohydrates
- D: None of the above.

9. **Some enzymes require a non protein part for its efficient functioning. This helper non protein part is called :**

- A: Accelator
- B: Cofactor
- C: Prosthetic group
- D: Apoenzyme

10. **What is the main effect of the inhibitors on the enzyme catalytic activity?**

- A: The enhances the speed of reaction.
- B: They increase the availability of active sites on the enzyme.
- C: They reduce the reaction rate.
- D: None of the above.

11. **An enzyme and substrate reacts through a special feature or site present on enzyme known as ?**

- A: Building site
- B: Catalytic site
- C: Active site
- D: Inhibition site

12. **What is the effect of the increase in the substrate concentration on the enzymatic reaction?**

- A: It increases the rate of reaction.
- B: It decreases the rate of reaction.
- C: It has no effect on the rate of reaction.
- D: It increases the rate of reaction but upto a certain limit.

13. **The enzymes which act as molecular scissors in recombinant technology are :**

- A: Exonucleases
- B: Endonucleases
- C: Polymerases
- D: All of the above

14. **Doubling the enzyme concentration has what effect on the rate of reaction?**

- A: Rate of reaction remains same.
- B: Rate of reaction doubles.
- C: Rate of reaction increase by three times.

D: Rate of reaction increase by four times.

15. **If enzyme concentration is continuously increased, what is the effect on the rate of reaction?**

A: It increases continuously.

B: There is no increase in the rate of reaction.

C: It increases to a certain level after that it will remain constant.

D: It increases to a certain level after that it decreases.

16. **Active site of an enzyme has how many definite regions?**

A: 2

B: 3

C: 4

D: 5

17. **Enzymes catalytic activity is limited to a small portion called?**

A: Co-factor

B: Coenzyme

C: Active site

D: Passive site

TEST 2

1. **A cofactor tightly bound to the enzyme on permanent basis is called :**

A: Activator

B: Co-enzyme

C: Apo-enzyme

D: Prosthetic group

2. **Enzyme succinate dehydrogenase coverts succinate into:**

A: Malate

B: Malonic acid

C: Fumarate

D: Citrate

3. **The view that active site of an enzyme is flexible and when a substrate combines with it, cause changes in enzyme structure is known as:**

A: Lock and key model

B: Induce fit model

C: Sliding filament model

D: Specificity model

4. **The type of inhibition in which inhibitors has no structural similarity to substrate and combines with enzyme at other than the active site are called?**

A: Irreversible inhibitors

B: Reversible inhibitors

C: Competitive inhibitors

D: Non competitive inhibitors

5. **Non-protein part of the enzyme which is essential for the proper functioning of the enzyme is called?**

A: Active site

B: Passive site

C: Coenzyme

D: Cofactor

6. **Who proposed the Lock and Key model to visualize the enzyme substrate interaction?**

A: Koshland
B: Meldeev
C: Emil Fischer
D: Robert Fisk

7. **Which of the following statement regarding enzymes is NOT true?**

A: Some enzyme have metal ions as co-factors.
B: Enzymes are compounds of hundreds of amino acids.
C: Enzymes have globular structure.
D: Enzymes alter the nature and properties of end products.

8. **If detachable co-factor is an inorganic ion then it is designated as:**

A: Co enzyme
B: Prosthetic group
C: Activator
D: Holoenzyme

9. **The competitive inhibitors have structural similarity with?**

A: Activator
B: Co-enzyme
C: Prosthetic group
D: Apo-enzyme

10. **The non protein part of enzyme which is covalently and permanently bound is called ?**

A: Prosthetic group
B: Co factor
C: Co enzyme
D: Activator

11. **The inhibitors that bind tightly and permanently to enzymes and destroy their globular structure and catalytic activity are:**

A: Irreversible inhibitors
B: Reversible inhibitors
C: Competitive inhibitors
D: Non-competitive inhibitors

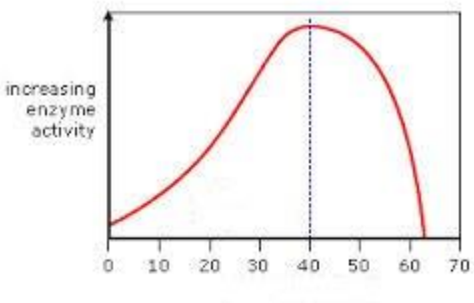
12. **An enzyme with its prosthetic group removed is called?**

A: Co-enzyme
B: Holoenzyme
C: Apoenzyme
D: Activator

13. **Co-factors have which of the following function?**

A: Act as a bridge between the enzyme and the substrate.
B: Provide a source of chemical energy.
C: Contributes directly to the chemical reaction.
D: All of the above.

14. **The graph below shows the effect of which of the following on the enzyme reaction?**



A: Enzyme concentration.
B: Substrate concentration.
C: Temperature
D: pH

TEST 3

1. **Which of the following form a weak linkage with the enzyme?**

A: Irreversible inhibitor.
B: Reversible inhibitor.
C: Prosthetic group.
D: Cofactor.

2. **What is the optimum pH for enzyme Pepsin?**

A: 1.00
B: 2.00
C: 4.50
D: 5.50

3. **If the cofactor is covalently bonded to enzyme then it will be called:**

A: Coenzyme
B: Activator
C: Apoenzyme
D: Prosthetic group

4. **Which of the following describes the prosthetic group i an enzyme?**

A: Loosely bound co-enzymes.
B: Tightly bound co-enzymes.
C: A detachable organic co-factor.
D: A detachable inorganic co-factor.

5. **Pepsin is produced in an inactive pepsinogen form because?**

A: This is the only possible way to produce it.
B: It is not required to work in the early stages of its life.
C: It is less energy intensive to produce pepsinogen than pepsin.
D: It does not digest the internal organ cells.

6. **What is the main property of non-competitive inhibitors?**

A: They do not reduce the rate of enzyme reaction.
B: The form the enzyme inhibitor complex at the site other than the active site.
C: The form the enzyme inhibitor complex on the active site.
D: They are always protein in nature.

7. **Optimum pH value for working of pancreatic lipase is:**

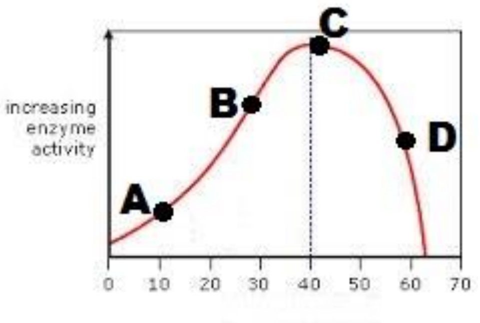
A: 4.5

B: 7.6

C: 9.0

D: 2.0

8. The graph below is between the enzymatic rate of reaction and temperature. What is the point in the graph where denaturing starts happening?



A: A

B: B

C: C

D: D

9. In which of the following cases, the enzyme shall not perform its function?

A: Enzyme missing its co-factor.

B: Apoenzyme

C: Non-availability of activator.

D: All of the above.

10. Enzymatic reactions are most sensitive to which of the following?

A: Concentration of enzyme.

B: Concentration of substrate.

C: Temperature

D: pH

11. What is the main deviation of induced fit model from the lock and key model?

A: Induced fit model proposed that enzymes active site is a rigid structure.

B: Induced fit model proposed that the activation site is much small than the one proposed by the lock and fit model.

C: Induced fit model proposed that the substrate can change the structure of the enzyme.

D: All of the above.

12. Which of the following statement defines the activator in an enzyme?

A: An organic permanent co-factor.

B: An inorganic permanent co-factor.

C: An organic detachable co-factor.

D: An inorganic detachable co-factor.

BIOENERGETICS
TEST 1

1. Photosystem II has chlorophyll a molecules in it which absorbs maximum light of __________ wavelength.

A: 650nm

B: 680nm

C: 700nm

D: 720nm

2. **Which one is the most abundant protein on earth?**

A: Keratin
B: Rubisco
C: Thrombin
D: None of these

3. **How many types of photosystems are there?**

A: 1
B: 2
C: 3
D: 4

4. **Photosynthesis is a _________ process.**

A: Oxidation
B: Reduction
C: Redox
D: Ionic

5. **What is required during pyruvate -------> Acetyl CoA ?**

A: NAD^+
B: FAD
C: FADH
D: NADPH

6. **Magnesium is an important nutrient ion in green plants as it is an essential component of:**

A: Cell sap
B: Protein
C: Chlorophyll
D: Glucose

7. **Carriers of respiratory chain are located on :**

A: Matrix of mitochondria
B: Inner membrane of mitochondria
C: Outer membrane of mitochondria
D: Cytoplasmic matrix

8. **During light dependent reactions, assimilating power in the form _________ is formed.**

A: $NADPH_2$
B: ATP
C: $NADPH + H^+$
D: All of these

9. **The respiratory chain is also known as:**

A: Electron transport system
B: Intermediate chain
C: Carrying chain
D: All of these

10. **Calvin cycle is a:**

A: Light dependent cycle
B: Light independent cycle
C: Non-cyclic
D: Occurs in chloroplast

11. **The folds present in the mitochondria are called?**

A: Cisternae
B: F- foldings
C: Cristae
D: Cilia

12. **Which chlorophyll is the most abundant one?**

A: Chlorophyll a
B: Chlorophyll b
C: Chlorophyll c
D: Chlorophyll d

13. The reactions of photosynthesis consist of how many parts?

A: 1
B: 2
C: 3
D: 4

14. In glycolysis, glycerate 1,3 bisphosphate is converted into glycerate-3-phosphate by losing _________ phosphate molecules.

A: 1
B: 2
C: 3
D: 4

15. Before entering into Kreb's cycle, the pyruate is first decarboxylated and oxidized into ?

A: Alpha ketoglutaric acid
B: Citric acid
C: Glyceric acid
D: Acetic acid

16. Where does the dark reactions take place ?

A: Thylakoids
B: Lumen
C: Grana
D: Stroma

17. Mitochondria is also known as:

A: Controlling center of the cell
B: Nucleus of the cell
C: Transporting medium
D: Power house of the cell

18. Malate is oxidized by ________ to oxaloacetate in Krebs cycle.

A: ATP
B: NAD
C: FAD
D: NADPH

TEST 2

1. If lactic acid builds up in thigh muscles it cause tiredness and pain. this condition is called :

A: Muscle fatigue
B: Tetany
C: Cramps
D: Oxygen debt in muscles

2. The electrons from Ferredoxin (Fd) are transfered to NADP with the help of?

A: Electron transport chain
B: Fd reductase
C: NADP reductase
D: All of these

3. Chlorophyll b and carotenoids are also called?

A: Normal pigments
B: Necessary pigments
C: Accessory pigments
D: Common pigments

4. The first action spectrum was given while working on _________?

- A: Yeast
- B: Leaves
- C: Spirogyra
- D: Plant buds

5. Every molecule of NADH, fed into electron chain produces:

- A: 6 ATP
- B: 4ATP
- C: 2 ATP
- D: 3 ATP

6. Final acceptor of electrons in repiratory chain is:

- A: Cytochrome-A
- B: Oxygen
- C: Cytochrome-A_3
- D: Cytochrome-C

7. The citrate is formed in the first step of kreb's cycle, what is the number of carbon atoms in the citrate?

- A: 2
- B: 4
- C: 5
- D: 6

8. What is the other name for calvin cycle?

- A: Z-scheme
- B: Calvin chain
- C: C_3-pathway
- D: C_2 - pathway

9. When the chloroplast run low on ATP, which photosystem is involved?

- A: Photosystem **I**
- B: Photosystem **II**
- C: Both Photosystem **I** and **II**
- D: Photosystem **III**

10. Oxidative phosphorylation, synthesis of ATP in presence of oxygen occurs in ?

- A: All types of cells
- B: All anaerobic cells
- C: All primitive cells
- D: All aerobic cells

11. What is the colour for chlorophyll a?

- A: Violet-blue
- B: Yellow-green
- C: Blue-green
- D: Orange-red

12. What does $NADPH_2$ provides during the dark reactions?

- A: Energized electron only
- B: H^+ only
- C: Both Energized electron and H^+
- D: H_2

13. Light can only work in chloroplast if it is absorbed. Which one of the following absorbs the visible light?

- A: Thylakoids
- B: Stroma
- C: Pigments
- D: All of these

14. Which of the following oxidation reduction substance does not take part in respiratory chain:

A: Coenzyme Q

B: FAD

C: Cytochromes enzymes

D: Molecular oxygen

15. Total NADH formed by one glucose molecule during the Kreb's cycle are:

A: 3

B: 6

C: 8

D: 18

16. What will be the net input when the net output in the calvin cycle is 1 G3P (a carbohydrate)?

A: $2CO_2$

B: $3CO_2$

C: $4CO_2$

D: $1CO_2$

17. A system of membranes present in the stroma forms an elaborate interconnected set of flat, disc like sacs , which are called?

A: Lumen

B: Thylakoid interior space

C: Thylakoids

D: Grana

18. What is the correct order for the transfer of energy in case of chlorophylls?

A: $Carotenoids \rightarrow Chlorophyll\ \mathbf{a}$

B: $Carotenoids \rightarrow Chlorophyll\ \mathbf{a} \rightarrow Chlorophyll\ \mathbf{b}$

C: $Carotenoids \rightarrow Chlorophyll\ \mathbf{b} \rightarrow Chlorophyll\ \mathbf{a}$

D: $Chlorophyll\ \mathbf{a} \rightarrow Carotenoids \rightarrow Chlorophyll\ \mathbf{b}$

19. The water splitting step of the photosynthesis is called ___________?

A: Cyclic Phosphorylation

B: Non- cyclic Phosphorylation

C: Photolysis

D: None of these

20. The head of chlorophyll is is a complex porphyrin ring. This porphyrin ring is made up of?

A: 2 Pyrrole rings

B: 2 Phytols

C: 4 Pyrrole rings

D: 4 Phytols

TEST 3

1. What kind of wavelengths are mostly absorbed by chlorophylls?

A: Green

B: Orange-red

C: Yellow

D: Indigo

2. The oxidative phase of glycolysis is also called?

A: Energy investment phase

B: Energy pay off phase

C: Preparatory phase

D: All of these

3. The electron transport chain of photosystem II does not contain:

A: Fd

B: Two cytochrome complex

C: Pq

D: Pc

4. **How many stages of cellular respiration occur in the mitochondria?**

A: 1

B: 2

C: 3

D: 4

5. **How many ATP's are used for the synthesis of one carbohydrate molecule?**

A: 3

B: 4

C: 6

D: 9

6. **The end product of anaerobic respiration in humans and other animals is:**

A: Pyruvic acid

B: Ethanol

C: Lactic acid

D: Glucose

7. **The pathway in which the electrons passes through both the photosystems is called?**

A: Cyclic phosphorylation

B: Chemiosmosis

C: Z-scheme

D: Calvin cycle

8. **One molecule of $FADH_2$ is produced in Kreb's cycle during conversion of:**

A: Succinate ------> Fumarate

B: Fumarate -------> Malate

C: Malate -> Oxaloacetate

D: α-ketoglutarate -----> Succinate

9. **The dense fluid-filled region present in the double membrane envelope of the chloroplast, containing most of the enzymes required to produce carbohydrates, is called ?**

A: Thylakoids

B: Granum

C: Stroma

D: Lumen

10. **Calvin cycle begins when a molecule of CO_2 reacts with a highly reactive five carbon sugar ?**

A: RUBP

B: G3P

C: Rubisco

D: Ribulose phosphate

11. **The acetyl Coenzyme A on entering the kreb's cycle reacts with __________ to form 6 carbon citrate.**

A: Malate

B: Citrate

C: Fumarate

D: Oxaloacetate

12. **In electron transport chain, the electron from NADH and $FADH_2$are passed to :**

A: Cytochrome a

B: Cytochrome a_2

C: Co-enzyme c

D: Co-enzyme Q

13. **Puyruvate is the end product of glycolysis, enters from cytosol to mitochondrial matrix, which is oxidated into _______ producing CO_2 as by product?**

A: Acetyl CoA

B: Citerate

C: NAD

D: FAD

14. **The columns of thylakoid sacs present in the stroma are called?**

A: Thylakoids

B: Lumen

C: Thylids

D: Grana

15. Which of the following is correct when equal intensities of light are given. There is more photosynthesis in?

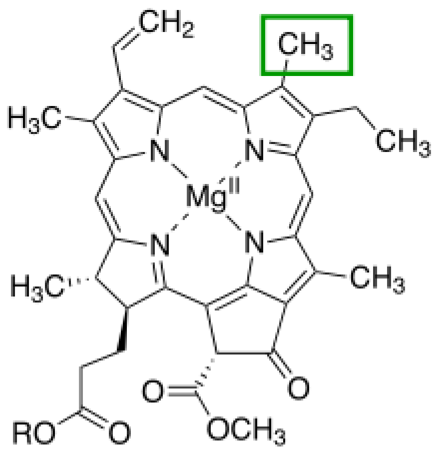
A: Red parts than in the blue part

B: Blue part than in the red part

C: Both have same rate

D: Blue part always has the highest rate

16. The head given in the diagram is for which type of chlorophyll?



A: chlorophyll a

B: chlorophyll b

C: chlorophyll c

D: All have same head.

17. The long hydrocarbon tail of the chlorophyll is also called:

A: Pyrrol

B: Phytol

C: Porphyrin

D: All of these

18. The fluid filled thylakoid interior space present in the thylakoid membranes is also called?

A: Stroma

B: Lumen

C: Granum

D: Thylids

19. The absorption spectrum of chlorophyll shows that absorption is maximum in which parts of the spectrum?

A: Blue and green parts

B: Red and green parts

C: Blue and red parts

D: Yellow and green parts

20. Where does the molecular mechanism of oxidative phophorylation takes place?

A: Cytosol

B: Stroma

C: Inner membrane of mitochondrial matrix

D: Outer membrane of mitochondrial matrix

TEST 4

1. **During the respiration process prior to entering into a mitochondrion a glucose molecule is split into _______?**

- A: Pyruvic acid
- B: Lactic acid
- C: Ethyl alcohol
- D: It remains as glucose

2. **In both cyclic and non-cyclic photophosphorylation, the mechanism for ATP synthesis is ?**

- A: Calvin chain
- B: Z-scheme
- C: Chemiosmosis
- D: Photosynthesis

3. **The radiations most important to life are visible light. It's wavelengths ranges from?**

- A: 300-700nm
- B: 350-750nm
- C: 380-750nm
- D: 390-700nm

4. **In the respiratory chain NADH is oxidized by ?**

- A: Molecular oxygen
- B: FAD
- C: Cytochrome a
- D: Coenzyme Q

5. **In which phase of glycolysis, the breakdown of glucose occurs and energy is expended?**

- A: Preparatory phase
- B: Oxidative phase
- C: Reduction phase
- D: Citric acid cycle

6. **Which one of the following is the energy conversion phase in the process of photosynthesis?**

- A: Light dependent reaction
- B: Light independent reaction
- C: Both are energy conversion phases
- D: Calvin cycle

7. **The complete breakdown of glucose molecule occurs in:**

- A: Alcoholic fermentation
- B: Aerobic respiration
- C: Lactic acid fermentation
- D: All of these

8. **Haem portion of the haemoglobin is a:**

- A: Pyrrole ring
- B: Phytol tail
- C: Porphyrin ring
- D: Phytol ring

9. **How many ATP's are produced during the reactions of respiratory chain?**

- A: 2
- B: 3
- C: 12
- D: 18

10. **The flat, square, light-absorbing hydrophilic part of the chlophyll is its:**

- A: Head
- B: Tail
- C: Branch
- D: Mid-area

11. **The flow of electron during the noncyclic phosphorylation is from:**

- A: Photosystem **I** to Photosystem **II**
- B: Photosystem **II** to Photosystem **I**
- C: Photosystem **I** to reaction center
- D: Photosystem **II** to reaction center

12. **In light independant stage of photosynthesis Carbon dioxide combines with ______________ to form an unstable 6- carbon intermediate.**

- A: Ribulose Bisphosphate
- B: Hexose Sugar
- C: Glycerate 3-Phosphate
- D: Glyceraldehyde-9-phosphate

13. **What are the products of Lactic acid fermentation of pyruvic acid?**

- A: Ethanol only
- B: CO_2 only
- C: Lactic acid only
- D: Both A and B

14. **By which mechanism ATP's are produced in the process of oxidative phosphorylation?**

- A: Phosynthesis
- B: Kreb's cycle
- C: Chemiosmosis
- D: All of these

15. **The special complexes built in thylakoid membranes through which the hydrogen ions move down their gradient to generate ATP are called?**

- A: ATP generators
- B: ATP pumps
- C: Hydrogen pumps
- D: ATP synthase

16. **In respiratory chain Coenzyme Q is oxidized by ?**

- A: Cytochrome a
- B: Cytochrome b
- C: Cytochrome c
- D: Molecular oxygen

17. **Photosystem I has __________ molecule in it and absorbs maximum light of __________ wavelength.**

- A: Chlorophyll a and 680nm
- B: Chlorophyll b and 700nm
- C: Chlorophyll a and 700nm
- D: Chlorophyll c and 700nm

18. **In one phase of krebs cycle, 1 molecule of ATP, 1 molecule of FADH and _________ molecule of NADH is produced?**

- A: 1
- B: 2
- C: 3
- D: 4

19. **The stage of cellular respiration in which Oxygen is not required is?**

- A: Glycolysis
- B: Pyruvate Oxidation
- C: Kreb's cycle
- D: Oxygen transport chain

20. **Oxidative phase of glycolysis starts with dehydrogenation of?**

A: Glyceraldehyde-3-phosphate
B: Glucose
C: Fructose-6-phosphate
D: Glucose-6-phosphate

VIRUS, BACTERIA & FUNGI
TEST 1

1. What type of bacteria are dependent on their host for nutrition?

A: Chemosynthetic
B: Saprophytic
C: Parasitic
D: Heterotrophic

2. The flagella of bacteria are composed of?

A: Carbohydrate
B: Lipid
C: Tubulin
D: Flagellin

3. Which of the following is true for Pox-viruses?

A: It is RNA-enveloped
B: It is DNA-non enveloped
C: It is DNA-enveloped
D: It is DNA-naked Virion

4. Adhesive pad of fungi penetrate the host with the help of ______?

A: Mechanical pressure and enzymes
B: Hooks and suckers
C: Softening by enzymes
D: Only by mechanical pressure

5. A disease in which virus damages the nerves is?

A: Yellow fever
B: Polio
C: Measles
D: Xerophthalmia

6. Biological Oxygen Demand (BOD) is a measure of?

A: Industrial wastes poured into water bodies
B: Extent to which water is polluted with organic compounds
C: Amount of carbon monoxide inseparably combined with hemoglobin
D: Amount of oxygen needed by green plants during night

7. What is the major cause of hepatitis b ?

A: Blood Transfusions
B: Blood clotting
C: Absence of fibrinogen
D: Contaminated Salts

8. Robert Koch was not involved in which of the following?

A: Preparation of specimen for microscopic examination.
B: Discovery of bacteria that caused anthrax.
C: Development of vaccine for anthrax and cholera.
D: Formulation of germ theory of disease.

9. During unfavourable condiitons, certain bacteria produce?

- A: Ribosomes
- B: Plasmids
- C: Mitochondria
- D: Spores

10. Hepatitis A and E is transmitted most commonly by the contact with_________ from the infected individuals.

- A: Serum
- B: Blood
- C: Feaces
- D: Saliva

11. Viruses are can be defined as what kind of parasites?

- A: Comples parasite
- B: Obligate parasites
- C: Temperate parasites
- D: Autotrophic

12. Which of the following are a comma shaped bacteria?

- A: Vibrio
- B: Spirillum
- C: Spirochete
- D: Coccus

13. Bacteria without any flagella are called?

- A: Atrichous
- B: Monotrichous
- C: Petritrichous
- D: Lophotrichous

14. Sometimes the viral DNA detaches from the chromosome of the host and lytic cycle starts. This process is called _______?

- A: Translation
- B: Transcription
- C: Induction
- D: Transfusion

15. How many known species of bacteria are there that cause diseases in humans?

- A: 250
- B: 150
- C: 200
- D: 300

16. In bacteria dormant, thick-walled, desiccation resistant form developed during the differentiation of vegetative cells is called?

- A: Exospores
- B: Cysts
- C: Endospores
- D: Zoospores

17. Which one of the cells are usually affected by HIV?

- A: T-killer lymphocyte
- B: T-helper lymphocyte
- C: B-plasma cell
- D: B-memory cell

18. Much of the research on gene expression has been done with E.coli, which inhibits the human intestine. This organism is a/an?

- A: Plasmid
- B: Virus

C: Bacterium
D: Protozoan

19. Vibrio is what kind of spiral?

A: Thin spiral
B: Comma shaped
C: Thick spiral
D: Spherical

20. The process in which we use physical agents to control bacteria/ microorganism is known as?

A: Sterilization
B: Immunization
C: Vaccination
D: Pasteurization

TEST 2

1. Which of the following bacteria cocci are arranged in long chains?

A: Streptococcus
B: Sarcina
C: Diplococcus
D: Staphylococcus

2. Which of the following fungus is used to give the flavor, aroma and characteristics color to some cheese?

A: Yeast
B: Ergot fungi
C: Aspergillus
D: Pencillium

3. Bacteria ribosomes lie in?

A: Cytoplasm
B: Capsule
C: Nuclear Membrane
D: Cell wall

4. Which of the following contain peptidoglycan cell wall?

A: Penicillium
B: Polytrychum
C: Adiantum
D: Bacterium

5. Which microscopic entity was found not filterable by Cherles Chamberland?

A: Bacteria
B: Fungi
C: Virus
D: Algae

6. Cyanobacteria are :

A: Photo autotrophic bacteria
B: Chemosynthetic bacteria
C: Saprotrophic bacteria
D: Parasitic bacteria

7. The process of transfer of genetic material from one bacterium to another is called?

A: Transduction
B: Conjugation
C: Transformation
D: Recombination

8. The destruction of all life forms is called?

A: Vaccination
B: Immunization
C: Sterilization
D: Pasteurization

9. In HIV viruse, reverse transcriptase enzyme convert single stranded RNA into double stranded viral DNA . This process is called:

A: Translation
B: Duplication
C: Reverse transcription
D: Replication

10. The first infectious disease against which an effective method of prevention was developed was of which kind?

A: Bacterial
B: Viral
C: Amoebic
D: Fungal

11. Bacteria cannot survive in a highly salted pickle because?

A: Salt inhibit reproduction
B: Baceria do not get enough light for photosynthesis
C: They become plasmolysed and consequently killed
D: The pickle does not contain nutrients necessary for bacteria to live

12. Which of the following is a thick and flexibal sprial in the spiral bacteria?

A: Coccus
B: Spirillum
C: Vibrio
D: Spirochete

13. Which of the following is present in both Grams positive and Grams negative cell Walls?

A: An outer membrane.
B: Peptidoglycan.
C: Teichoic acid.
D: Lipopolysaccharides.

14. HIV is classified as:

A: Bacteriophage
B: Oncovirus
C: Retrovirus
D: Icosahedrel virus

15. Antibiotics are produced by fungi and certain bacteria of group:

A: Oomycetes
B: Ascomycetes
C: Actinomycetes
D: Basidiomycetes

16. The enzymes involved in viral replication are synthesized?

A: On the viral ribosome
B: By the host cell
C: On the interior surface of the viral membrane
D: On the interior surface of the viral coat

17. Which organisms are the indicator of SO_2 pollution of air?

A: Mosses
B: Lichens
C: Mushrooms
D: Puffballs

18. Which of the following is the most effective protection against the viral infections?

A: Disinfectants.

B: Natural immunity of the host.

C: Antibiotics.

D: Microbistatics.

19. Bacteriophages that induce bacterial cell lysis are called:

1. A: Temperate phage
B: Virulent phage
2. C: Lysogenic phage
D: Viroids

20. Symptoms of AIDS are?

3. A: Pneumonia
B: Swollen lymph nodes
4. C: General loss of immune system
D: All of the above.

TEST 3

1. What is the main difference between the cyst and spores in bacteria?

A: Only cyst are dormant.

B: Only cyst are heat resistant.

C: Only spores are dormant.

D: Only spores are heat resistant.

2. The phenomenon of Bacteriophage was first discovered by ?

A: Twort

B: D'Herelle

C: Stanley

D: Edward Jenner

3. Mad cow infection is caused by which of the following micro-organism?

A: Virus

B: Prions

C: Bacteria

D: Fungi

4. Which of the following is an example of rust fungus?

A: Phytophthora

B: Ustilago

C: Albugo

D: Puccinia

5. Some chemosynthetic bacteria use energy obtained from oxidizing which of the following?

A: Ammonia

B: Sulphur

C: Ferrous Iron

D: All of the above.

6. Which of the following bacteria is a bacilli?

A: Pneumococcus

B: Pseudomonas

C: Vibrio Cholera

D: Hyphomicribium

7. Cause of STD that affects mucous membrane of the Urogenital tract is :

A: Staph. Aureus

B: Treponemma Pallidum

C: Nesisseria Gonorrhea

D: E. Coli

8. Which of the following can be prevented through vaccination?

A: AIDS and cancer

B: Malaria and AIDS

C: Typhoid and cancer

D: Mumps and measles

9. An isolated virus is not considered a living organism because?

A: It separates into two inert part

B: It cannot metabolize

C: It rapidly loses its genome

D: It is coated with air-tight, chemically inert shield

10. When a bacteriophage is in its lytic phase. It carries some of the bacterium's partially digested chromosome to another host cell, the process is called?

A: Conjugation

B: Transformation

C: Transduction

D: Restricted transduction

11. Which of the following statement is correct regarding the bacteriophage cycle?

A: In lysogenic phage, the viral DNA exists as a separate molecule within the bacterial cell.

B: Lyctic phage does not harm the host cell.

C: In lysogeny the bacterium continues to live and reproduce normally.

D: All of the above are correct.

12. Which one of the following fungi cause vaginal thrush?

A: Tortula

B: Aspargillus

C: Candida

D: Penicillium

13. Which bacteria need oxygen but can also live in the absence of oxygen?

A: Facultative bacteria

B: Aerobic Bacteria

C: Anaerobic bacteria

D: Microaerophilic bacteria

14. Function of bacterial endospores is?

A: Reproduction

B: Protein Synthesis

C: Survival

D: Storage

15. Which statement about bacteria is true?

A: Gram positive bacteria have more lipids in their cell wall

B: Gram negative bacteria have more lipids in their cell wall

C: Lipids are absent in both gram positive and gram negative bacteria

D: Both have equal amount of lipids

16. Which fungal disease spreads by seed and flowers?

A: Soft rot of potato.
B: Corn smut.
C: Covered smut of barley.
D: Loose smut of wheat.

17. Most of the lichens consist of?

A: Green algae and ascomycetes
B: Brown algae and higher plant
C: Blue green algae and basidiomycetes
D: Red algae and ascomycetes

18. Which one of the following is the serious infection of lungs caused by inhalation of spores of a fungus?

A: Pneumonia
B: Histoplasmosis
C: Ergotism
D: Aspergillosis

19. Which of the following is an example of chemotherapeutic agent?

A: Formaldehyde
B: Phenol
C: Sulfonamides
D: Alcohol

20. Rhabdovirus has what kind of shape?

A: Round shape
B: Tadpole like
C: Cubical shape
D: Rod shape

TEST 4

1. Fungi which cause thrush in humans are:

A: Lovastatin
B: Aspergillus fumigatus
C: Sacromyces
D: Candidiasis

2. Most widespread problem by misuse of antibiotics is:

A: Rapid cure
B: Disturbance in metabolism
C: Increased resistance in pathogens
D: Immuity

3. Lichens indicate SO_2 pollution because they?

A: Show association between algae and fungi
B: Grow faster than others
C: Are sensitive to SO_2
D: Flourish in SO_2 rich environment.

4. Citric acid is obtained from which fungi species?

A: Morchella
B: Pencillium
C: Cyclosporine
D: Aspergillus

5. Bacteria were regarded to be Plants because of which of the following reasons?

A: Some of them are green.

B: They are present every where.

C: Some of them cannot move.

D: They have a rigid cell wall.

6. Which of the following fungi secretes toxins during storage conditions of crop plants?

A: Aspergillus

B: Candida Albicans

C: Fusarium

D: A & B

7. How does a virus detroys its host ?

A: By taking control of its food.

B: By bursting or destroying its structure through mass production

C: By dehydrating the host.

D: By damaging the golgi apparatus of the cell.

8. The organisms which can grow best in the presence of a low concentration of oxygen are called?

A: Aerophilic

B: Microaerophilic

C: Aerobic

D: Anaerobic

9. Mycorrhizae exhibits the phenomenon of?

A: Parasitism

B: Symbiosis

C: Antagonism

D: Endemism

10. Which one of the following statement about lichens is wrong?

A: These grow very rapidly (2 cm per day).

B: They show fungal and algae symbiotic relationships.

C: Some of its species are eaten by reindeers.

D: These are pollution indicators.

11. Which of the following is a RNA virus?

A: Herpes Virus

B: Pox Virus

C: Polio virus

D: All of the above.

12. Reverse transcriptase is used to make DNA copies of:

A: Host RNA

B: Host DNA

C: Viral RNA

D: Viral DNA

13. Which type of bacteria has flagella surrounding the whole cell?

A: Peritrichous

B: Lophotrichous

C: Atrichous

D: Monotrichous

14. Mesosomes are infoldings of cell membrane and are involved in:

A: RNA synthesis

B: Protein synthesis

C: DNA replication

D: Metabolism

15. Which of the following structure is present in all bacteria?

A: Ribosome

B: Slime

C: Flagella

D: Capsule

16. After entering the cell, 200 bacteriophages are formed in how many minutes?

A: 10

B: 25

C: 40

D: 100

17. Mouth, lips and skin are affected due to the infection of?

A: Pox Virus

B: Paramyxo virus

C: Herpes virus

D: Influenza virus

18. Which of the following are used mostly in the phage study?

A: T_2 & T_4

B: T_1 & T_2

C: T_3 & T_4

D: T_1 & T_3

19. There exists a close association between the alga and the fungus within the lichen. The fungus?

A: Provides food for the algae.

B: Provides protection, anchorage and absorption for the algae.

C: Fixes the atmospheric nitrogen for the alga.

D: Releases oxygen for the algae.

20. Retroviruses have a special enzyme which can convert a single-stranded RNA genome into double-stranded viral DNA.This enzyme is called?

A: Reverse transcriptase

B: RNA polymerase

C: Viral nuclease

D: RNA replicas

KINGDOM PLANTAE & ANIMALIA
TEST 1

1. The leaves of Lycopsida are small and single veined, they are also called_______?

A: Microphyll

B: Megaphyll

C: Foliage

D: Lamina

2. In which vertebrates placenta is formed during the development of fetus?

A: Pisces

B: Aves

C: Mammals

D: Reptiles

3. Silk worm is:

A: Insect
B: Arachnid
C: Myrapod
D: Crustacian

4. Which of the following are considered as the earliest or most primitive form of animals on the earth?

A: Cnideria
B: Flateworms
C: Porifera
D: Nematodes

5. Five kingdom classification system was introduced by which scientist?

A: Robert Brown
B: Pasteur
C: Robert Whittaker
D: De-Duve

6. Which of the following specie is not present in Class Oligochaeta (Phylum Annelida)?

A: Lumbricus terrestris
B: Pheretima posthuma
C: Other earthworms
D: Chaetopterus

7. Which group of Vascular plant is also called arthrophytes because the whole plant body is composed of large number of joints?

A: Pteropsida
B: Sphenopsida
C: Lycopsida
D: Psilopsida

8. Which is not included in Ferns or class Filicineae?

A: Dryopteris
B: Pteridium
C: Adiantum
D: Equisetum

9. Which type of the blood circulatory system is present in Arthropods?

A: Closed Circulatory system
B: Open Circulatory system
C: No Circulatory system
D: None of these

10. Ascaris is which one of the following?

A: Ectoparasite
B: Intestinal parasite
C: Respiratory parasite
D: Urogenital parasite

11. Which of the following endoparasite in sheep and occasionally in human beings?

A: Liver fluke
B: Blood fluke
C: Tapeworm
D: None of these

12. Which one of the following is the primary host of liver fluke?

A: Man
B: Sheep
C: Snail
D: Dog

13. The soruces of staple food for man are plants which belong to the family?

A: Mimosaceae
B: Poaceae
C: Rosacea
D: Fabaceae

14. The body of nematodes is:

A: Segmented
B: Flat
C: Jointed
D: None of these

15. Which one is the most important plant of Solanaceae family?

(Hint: The people of Ireland are completely dependent on it)

A: Solanum tuberosum
B: Nicotiana tabacum
C: Lycopersicum esculentum
D: Capsicum frutescens

16. All the larval form of Echinodermata animals exhibits bilateral symmetry but the adults' shows________ kind of symmetry.

A: Bilateral symmetry
B: Radial symmetry
C: Both A and B
D: Plane Symmetry

17. ______________ is a good example of polymorphism.

A: Hydra
B: Star Fish
C: Obella
D: Equplectella

18. Nematodes are best described as:

A: Round worms, triploblastic, Pseudocoelomates
B: Round worms, diploblastic, Pseudocoelomates
C: Round worms, triploblastic, coelomates
D: Round worms, triploblastic, acoelomates

19. Which of the following is the amphibian of the plant kingdom?

A: Pteridophytes
B: Bryophytes
C: Gymnosperms
D: Angiosperms

20. Many members of ________ family yields powerful alkoids e.g. Atropa bellandona, Datura which are rich in atropine and deturine respectively are used medicinally.

A: Fabaceae
B: Caesalpiniaceae
C: Poaceae
D: Solanaceae

TEST 2

1. Endosperm of Pinus which belongs to Class Gymnospermae is:

A: Haploid
B: Diploid
C: Triploid
D: Polyploid

2. ______________ is a triploblastic organism.

A: Jelly fish

B: Sea anemone

C: Tapeworms

D: Corals

3. The spore of a moss, unlike that of liverworts, develops into alga like structure called ________?

A: Paraphyses

B: Protonema

C: Antheridia

D: Archegonia

4. Body cavity of round worm is called ?

A: Pseudocoelom

B: Coelom

C: Acoelom

D: Enteron

5. Fern seed plants are included in which sub division of vascular plants?

A: Filicineae

B: Lycopsida

C: Sphenopsida

D: Pteropsida

6. Which one is the earliest Group of Vascular Plants?

A: Lycopsida

B: Sphenopsida

C: Pteropsida

D: Psilopsida

7. Which one is the simplest of all bryophytes?

A: Bryopsida

B: Anthoceropsida

C: Hepaticopsida

D: Pteropsida

8. In which of the following class respiration is by gills lungs or special structures is called book lungs?

A: Class Crustacea

B: Class Insecta

C: Class Arachnida

D: Class Myriapoda

9. Which of the following is a kind of inflorescence?

A: Racemose

B: Cymose

C: Solitar

D: All of these

10. Which of the angiosperms plant lack chlorophyll and a parasite in nature?

A: Indian Pipe

B: Wild Geranium

C: Fragrant water lily

D: None of these

11. In Annelida (The segmented Worms) excretion takes place through specialized structures called_________?

A: Prostomium

B: Nephridia

C: Papillae

D: Gastrozoids

12. Which one of the following is an example of free living carnivorous flatworm?

A: Liver fluke
B: Schistosoma
C: Tapeworm
D: Dugesia

13. **Polymorphism is a characteristics feature of:**

A: Cnidaria
B: Porifera
C: Annelida
D: Nematods

14. **A healthy megaspore in the megasorangium germinate to form:**

A: Male Gametophyte
B: Embryo Sac
C: Female Gametophyte
D: Sporophyte

15. **When beef which is not properly cooked is consumed by humans, they may become infected by:**

A: Hook worm
B: Pin worm
C: Tape worm
D: Round worm

16. **The earliest group of the vascular plants is:**

A: Psilopsida
B: Lycopsida
C: Pteropsida
D: Sphenopsida

17. **Which of the following are naked-seeded plants?**

A: Gymnospermae
B: Angiospermae
C: Lycopsida
D: Psilopsida

18. **In the angiosperms, the fertile leaves having ovules are folded and joined at the margins to form:**

A: Ovary
B: Ovule
C: Seed
D: Stigma and style

19. **Sleeping sickness in humans is caused by:**

A: Anopheles
B: Aedes
C: Trypanosoma
D: Plasmodium

20. **Fabaceae family of about 400 genera and 900 species is also known as_________?**

A: Pea Family
B: Potato Family
C: Rose Family
D: Cassia Family

TEST 3

1. **The male reproductive parts of flower are called?**

A: Gynoecium
B: Calyx
C: Corolla
D: Androecium

2. **Which of the following character is missing in Kingdom Animalia?**

- A: Multicellular
- B: Eukaryotic
- C: Diploid
- D: Autotrophs

3. **In bryophytes the structure which is similar to the roots of vascular plants are the:**

- A: Antheridia
- B: Rhizoids
- C: Zooids
- D: Archegonia

4. **In Angiospermae leaves bearing ovules are folded and joined at the margins to form_____?**

- A: Fruits
- B: Seeds
- C: Ovaries
- D: Flowers

5. **_______________ is also called liver fluke.**

- A: Dugesia
- B: Taenia
- C: Fasciola
- D: Coral

6. **In double fertilization one of two male gametes fuses with the secondary nucleus to form endosperms while second male gamete fuses with egg to form_______?**

- A: Nucleus
- B: Haploid Zygote
- C: Oospore
- D: Embryo

7. **In which of the following class of Annelida locomotion organs are not present and they move due to the contraction of their body with the help of suckers?**

- A: Class Polychaeta
- B: Class Oligochaeta
- C: Class Hirudinea
- D: None of these

8. **Important terrestrial adaptation that evolved exclusively in seed plants include all of the following except**

- A: Pollination by wind or animal instead of fertilization by swimming sperm
- B: Transport of water through vascular tissues
- C: Retention of the gametophyte plant within the sporophyte
- D: Dispersal of new plant by seeds

9. **The unique feature of bryophytes compared to other green plant group is that**

- A: They produce spores
- B: They lack vascular tissue
- C: They lack roots
- D: Their sporophyte is attached to the gametophyte

10. **Name common gut roundworm parasite of humans and pigs :**

- A: Ascaris Lumbricoides
- B: Lumbricus Terresaris
- C: Pheretima Posthuma
- D: Hirudo Medicinalis

11. A heterosporous plant is one that:

A: Produces a gametophyte that bears both sex organs

B: Produce microspores and megaspores in separate sporangia, giving rise to separate male and female gametophytes

C: Is a seedless vascular plant

D: Produce two kinds of spores, one asexually by mitosis and one type by meiosis

12. The largest class of the Mollusca which includes snails and slugs is:

A: Bivalvia

B: Gastropoda

C: Cephalopoda

D: Monoplacophora

13. Which one was the first Plant in which True leaves and roots were formed?

A: Cooksonia

B: Psilotum

C: Lycopods

D: Horneophyton

14. In human E. Coli is involved in the formation of :

A: Calcium

B: Vitamin D

C: Vitamin K

D: Vitamin A

15. Which one of the following is not included in Subdivision of Bryophytes?

A: Hepaticopsida

B: Bryopsida

C: Anthoceropsida

D: Lycopsida

16. Which specie of plant does not belongs to Fabaceae family which is also known as Pea family?

A: Lathyrus odoratus

B: Arachis hypogea

C: Cicer arietinum

D: Solanum tubersum

17. Mollusca in which bodies arc enclosed in a shell which consists of right and left piece are included in class:

A: Bivalvia

B: Gastropoda

C: Cephalopoda

D: Monoplacophora

18. The fruit of ______ and ______ are rich in Vitamin C and A and are used as Condiment.

A: Capsicum annum and Capsicum frutescens

B: Capsicum annum and Nicotiana tabacum

C: Lycopersicum esculentum and Capsicum frutescens

D: Capsicum annum and Solanum tuberosum

19. The male gametophyte of an angiosperm is the:

A: Anther

B: Embryo sac

C: Microspore

D: Germinated pollen grains

20. **Which family is also known as Night shade or Potato family?**

A: Fabaceae

B: Caesalpiniaceae

C: Poaceae

D: Solanaceae

TEST 4

1. **Transportation of water and minerals in Bryophytes occur through______?**

A: Xylem

B: Phloem

C: Diffusion or osmosis

D: All of these

2. **Platyhelminthes are best described as:**

A: Flatworms, triploblastic, acoelomates animals

B: Flatworms, diploblastic, acoelomates animals

C: Flatworms, triploblastic, coelomates animals

D: Flatworms, triploblastic, pseudo coelomates

3. **It is assumed that evolution of megaphyll included series of successive evolutionary steps among which is the arrangement of unequal dichotomies in one plane. This process is known as_____?**

A: Overtopping

B: Fusion

C: Webbing

D: Planation

4. **Which of the following Platyhelminthes is not endoparasite, i.e., live inside their host?**

A: Liver fluke

B: Blood fluke

C: Tapeworm

D: Planaria

5. **In which class of Pteropsida seedless plants with foliar sporangia are present?**

A: Filicineae

B: Gymnosperm

C: Angiosperm

D: Both in B & C

6. **_______ is the first group of the invertebrates which have developed a closed circulatory system?**

A: Flat worm

B: Sponges

C: Annelids

D: Coelenterates

7. **Bryophytes plants possess which of the following characteristics_______?**

A: Non-Vascular, Flowerless

B: Vascular, flowerless

C: Vascular, flowering

D: Non-Vascular, flowering

8. **Polymorphism is a mechanism exhibited by?**

A: Coelenterates

B: Arthropods

C: Porifera

D: Platyhelminthes

9. A spider is different from the insects because of the reasons:

A: It has four pairs of legs

B: Does not have any antenna

C: Body is divided into two parts

D: All of these

10. Which fern grows along moist walls and water courses and its stem is a short, thick and underground, usually unbranched horizontally growing rhizome?

A: Pteridium

B: Dryopteris

C: Pteris

D: Adiantum

11. Which of the following phylum of Kingdom Animalia have well developed excretory system containing malpighian tubules?

A: Arthropoda

B: Annelida

C: Mollusca

D: Porifera

12. Multicellular male reproductive organ of Bryophytes is:

A: Archegonia

B: Antheridia

C: Oogamy

D: Sporangium

13. Which of the following arthropods are aquatic and have gills for respiration?

A: Class Crustacea

B: Class Insecta

C: Class Arachnida

D: Class Myriapoda

14. During development in an animal, mesoderm layer give rise to:

A: Nervous system

B: Alimentary canal

C: Mouth

D: Skeletal and muscular system

15. Which of the following is not included in Non-Vascular Plants?

A: Liverworts

B: Mosses

C: Hornworts

D: Club Mosses

16. Nematocysts are the specialized cells found in the members of phylum________?

A: Cnidaria

B: Porifera

C: Annelida

D: Mollusca

17. Horsetails are included in class

A: Sphenopsida

B: Lycopsida

C: Psilopsida

D: Pteropsida

18. The branches of________ provide excellent walking sticks and wood.

A: Crataegus

B: Pyrus Pastia

C: Fragaria		D: Malus

19. Many Colonial coelenterates such as corals produce a hard exoskeleton formed of________?

A: $CaCl_2$		B: $CaCO_3$

C: $CaSO_4$		D: None of these

20. _________ is the beautiful and delicate sponge made of glassy frame work. It is commonly called Venus flower basket?

A: Sycon		B: Spongilla

C: Euplectella		D: Leucoselenia

DIGESTION
TEST 1

1. Which group of animals have teeth structurally and functionally intermediate between the extremes of specialization?

A: Omnivores.		B: Herbivores.

C: Carnivores.		D: Macrophagous feeders.

2. Which of these is not a disease but a symptom of other disorders?

A: Piles		B: Bulimia nervosa

C: Food poisoning		D: Dyspepsia

3. What are the characteristic movements of digestive system called?

A: Swallowing.		B: Peristalsis.

C: Antiperistalsis.		D: Mastication.

4. Where is partly digested food stored in the cockroach?

A: Malpighian tubule		B: Gizzard

C: Mesenteron		D: Crop

5. Where does the most absorbtion of digested food takes place?

A: Duodenum.		B: Jejunum.

C: Ileum.		D: Ascending colon.

6. The function of goblet cells is to secrete?

A: Gastrin		B: HCl

C: Pepsinogen		D: Mucus

7. In which form the food is pushed to the back of mouth by the action of tongue?

A: Grinded food.		B: Bolus.

C: Chyme.		D: Digested food.

8. Which of these is the longest segment of small intestine?

- A: Duodenum.
- B: Jejunum.
- C: Ileum.
- D: All are of same length

9. In large intetine, vitamin K is formed by the activity of ?

- A: Symbiotic bacteria
- B: Obligate bacteria
- C: Parasitic bacteria
- D: Facultative bacteria

10. What is the action of backward movement of tongue on epiglottis?

- A: Epiglottis goes in a horizontal position.
- B: Closes the glottis.
- C: Epiglottis goes in a vertical position.
- D: Both A & B.

11. Which of these is an omnivore?

- A: Cattle.
- B: Cat.
- C: Crows.
- D: Dog.

12. What is the midgut of cockroach called?

- A: Gizzard
- B: Crop
- C: Mesenteron
- D: Colon

13. What is the major function of rectum in cockroach?

- A: Breakdown of food.
- B: Grinding.
- C: Digestion.
- D: Temporary storage.

14. What is the mode of nutrition in earthworm?

- A: Omnivores.
- B: Macrophagous feeders.
- C: Detrivores.
- D: Filter feeders.

15. What are the 3 sites of digestion in humans?

- A: Oral cavity, esophagus, stomach.
- B: Oral cavity, stomach, small intestine.
- C: Stomach, small intestine, colon.
- D: Stomach , small intestine, liver.

16. Which organelle fuses with food vacuole in amoeba in the first step of digestion?

- A: Ribosome
- B: Phagosome
- C: Lysosomes
- D: Golgi vesicles

17. Which force assists the movement of material through the esophagus?

A: Gravity.

B: Body movements.

C: Antiperistalsis.

D: Digestion.

18. **Which group of teeth is most important in carnivores?**

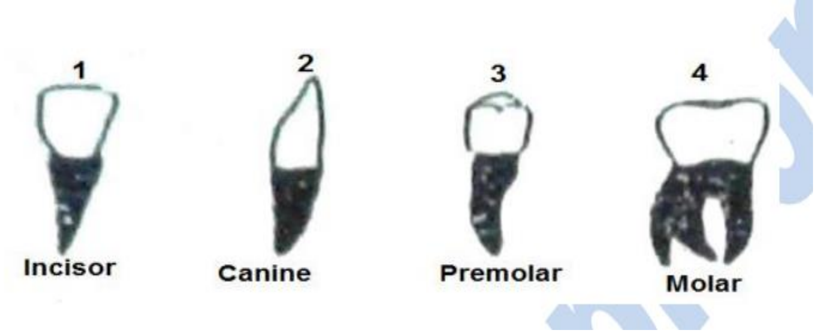
A: Incisors.

B: Premolars.

C: Molars.

D: Canines.

19. **The diagram shows the four types of human tooth. Which teeth are used for cutting rather than grinding food?**



A: 1 and 2

B: 2 and 3

C: 3 and 4

D: 4 and 1

20. **What is the benefit of capturing prey in insectivorous plants?**

A: Autotrophism.

B: Rapid growth.

C: Food variety.

D: Fast metabolism.

TEST 2

1. **Histamine is produced by which cells?**

A: Basophils

B: Platelets

C: Monocytes

D: Eosinophils

2. **Which teeth are mainly responsible for the grinding of food in humans?**

A: Incisors

B: Canines

C: Premolars

D: Molars

3. **Where are the salivary glands present in cockroach?**

A: Mouth cavity

B: Malpighian tubule

C: Pharynx

D: Thorax

4. **Which of the following organisms has the digestive cavity known as coelenteron?**

A: Planaria

B: Cockroach

C: Hydra

D: Amoeba

5. **What is the effect of phosphorus deficiency in plants?**

A: Chlorosis.
B: Stunted growth of roots.
C: Preamature death.
D: Leaf margins yellowing.

6. **Which of these is not an animal mode of nutrition?**

A: Detritivores
B: Fluid feeders
C: Parasitic
D: Autotrophism

7. **Saliva is basically composed of water,mucus,amylase and :**

A: Sodium hydroxide
B: Sodium bicarbonate
C: Hydrocarbons
D: Sodium chloride

8. **Cat belongs to which group of animals on the basis of nutrition?**

A: Herbivores.
B: Carnivores.
C: Omnivores.
D: Macrophagous feeders.

9. **Bicarbonate ions in the human digestive system are released by which organ?**

A: Liver
B: Gallbladder
C: Pharynx
D: Pancreas

10. **Which of the following is the stimulus for gastrin production in humans?**

A: Protein
B: Lipid
C: Carbohydrate
D: Vitamins

11. **Gastric glands are composed of ______________ types of cells?**

A: 2
B: 3
C: 4
D: 5

12. **Trypsinogen is activated to trypsin by :**

A: HCl
B: Enterokinase
C: Mucus
D: Gastrin

13. **Which of these is a function of saliva?**

A: Moistening and lubrication.
B: Antisepsis and stabilization of pH.
C: Carbohydrate digestion.
D: All of these.

14. **Which of these is not a method of macrophagous feeding?**

A: Tentacular feeding.
B: Grazing.
C: Scraping.
D: Seizing.

15. **How insects are trapped in sundew plant?**

A: Cannot climb out because of stiff hair.

B: Interlocked between stiff bristles

C: Caught in sticky fluid at the end of leaf.

D: Stuck in complex leaf structure.

16. What are the blind ends of intestine branchings in planaria called?

A: Cnidocil

B: Eyespot

C: Caecae

D: Colon

17. Which cells in hydra are responsible for mixing of food with enzymes and breaking it up into fine particles?

A: Glandular cells.

B: Flagellate cells.

C: Cnidocil.

D: Nematocyst.

18. Which one of the following vitamins is produced by the microflora of large intestine?

A: Vitamin D

B: Vitamin C

C: Vitamin K

D: Vitamin A

19. What is the correct sequence of characteristic process of holozoic nutrition?

A: Ingestion - assimilation - digestion - egestion

B: Ingestion - digestion - egestion - assimilation

C: Digestion - absorbtion - assimilation - ingestion

D: Ingestion - digestion - absorbtion - assimilation

20. In which case the walls of stomach or duodenum become denuded of mucus protection and a sore develops?

A: Piles

B: Dyspepsia

C: Food poisoning

D: Ulcer

TEST 3

1. What of the following causes hunger pangs in humans?

A: Hypoglycemia

B: Hyperglycemia

C: Hypotension

D: Hypocalcemia

2. Which herbivore does not have upper incisors?

A: Horse.

B: Sheep.

C: Cow.

D: Camel.

3. How long after previous meal does a hunger pang begins?

A: 6 - 12 hours.

B: 12 - 24 hours.

C: 24 - 36 hours.

D: 36 - 48 hours.

4. **What is the burning sensation caused by the back flush of acidic chyme into esophagus called?**

A: Vomiting
B: Antiperistalsis
C: Pyrosis
D: Indigestion

5. **In which disease related to nutrition serum electrolyte imbalance is very common?**

A: Obesity
B: Anorexia nervosa
C: Bulimia nervosa
D: Piles

6. **What is the main function of gall stones?**

A: Digest proteins.
B: Generate bile pigments.
C: Activate trypsinogen.
D: Block the relase of bile.

7. **Which of these cause food poisoning and have selective action on central nervous system?**

A: Salmonella.
B: Campylobactor.
C: Clostridium.
D: Streptococci.

8. **What is the main function of zymogen cells in the human stomach?**

A: Decrease in stomch pH.
B: Regulation of secretion.
C: Mucus production.
D: Protein digestion.

9. **Which plant has a characteristic bilobed leaves with midrib between them and a row of long stiff bristles along margin of each lobe?**

A: Sarracenia pupurea.
B: Brassica campestris.
C: Drosera intermedia.
D: Dionaea muscipula.

10. **HCl in gastric juice is secreted by which one of the following cells?**

A: Chief Cells
B: Oxyntic cells
C: Mucous Cells
D: Kupfer cells

11. **What is the major benefit of grinding?**

A: Easy swallowing and fast digestion
B: Protection from foreign bodies.
C: Easy digestion.
D: Fast egestion.

12. **What is the other component of pancreatic secretions apart from the digestive enzymes?**

A: Mucus
B: Hydrochloric acid
C: Sodium bicarbonate
D: Water

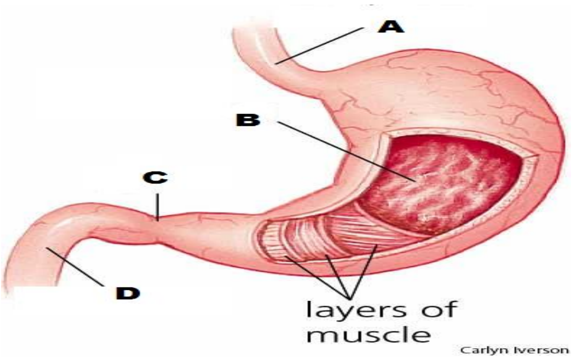
13. **Which of the following cells are not part of the stomach?**

A: Parietal cells.
B: Zymogen cells.
C: Endocrine cells.
D: Goblet cells.

14. **Which of these does not produce the mentioned secretion?**

- A: Mucus cells - mucus.
- B: Parietal cells - hydrchloric acid.
- C: Zymogen cells - pepsinogen.
- D: Oxyntic cells - pepsinogen.

15. **Identify duodenum in the figure below:**



- A: A
- B: B
- C: C
- D: D

16. **What are the 3 kinds of cells present in the human gastric glands?**

- A: Mucous, parietal and oxyntic.
- B: Zymogen, parietal, oxyntic.
- C: Mucous, oxyntic, zymogen.
- D: Parietal, oxyntic, chief cells.

17. **What is meant by piles?**

- A: Voracious eating followed by self induced vomiting or fasting.
- B: Incomplete or imperfect digestion.
- C: Having abnormal amount of fat on body.
- D: Masses of dilated, tortuous veins in anorectal mucosa.

18. **Which of these lives as a twining parasite?**

- A: Dodder.
- B: Puccinia.
- C: Lichen.
- D: Mycorrhiza.

19. **What is the pH required for the 2nd phase of digestion in amoeba during which it is completed?**

- A: 5.6
- B: 7
- C: 7.3
- D: 4.5

20. **How does the planaria engulfs the prey?**

- A: Prey is paralyzed by ejecting poison and grasped and pushed into mouth.
- B: By protruding eversible pharynx through mouth and pushes it into gastrovascular cavity.
- C: By forming a food vacuole.

D: By simple mouth feeding.

TEST 4

1. **What component of a prey is beneficial in insectivorous plants?**

A: Nitrogenous compounds. B: Fatty acids.
C: Minerals. D: Enzymes.

2. **The hormone which inhibits the secretion of gastric juice is:**

A: Secretin B: Gastrin
C: Thyroxin D: Parathromone

3. **Which of the following matches the correct enzyme with substrate?**

A: Erypsin – Maltose B: Maltase - Lactose
C: Amino peptidase – Dipeptides D: Lipase - Fat

4. **What is the condition arising due to the excessive water absorbtion from large intestine?**

A: Diarrhea B: Gall stones
C: Urinary tract infection D: Constipation

5. **The lymph vessel of villi is called :**

A: Epithelium B: Afferent Lymph vessel
C: Adenoids D: Lacteals

6. **What is the mode of nutrition in aphids?**

A: Filter feeders. B: Fluid feeders.
C: Macrophagous feeders. D: Detrivores.

7. **What is the parasite called that lives in host at all the times ?**

A: Endoparasite. B: Ectoparasite.
C: Obligate. D: Facultative.

8. **Which of the following enzymes is released in inactive form ?**

A: Amylase B: Lipase
C: Enterokinase D: Pepsin

9. **Which organism provides protection against desiccation in lichens?**

A: Algae. B: Roots.
C: Bacteria. D: Fungus.

10. **What is the mode in which water entering body is responsible for providing nutrition?**

A: Filter feeders. B: Macrophagous feeders.

C: Detrivores. D: None of the above.

11. **Which cells produce mucus in large intestine?**

A: Goblet cells. B: Absorptive cells.
C: Endocrine cells. D: Parietal cells.

12. **Which of the following is the last part of the small intestine?**

A: Duodenum B: Ileum
C: Jejunum D: Colon

13. **What kind of nutrition is seen in Puccinia?**

A: Autotrophic. B: Saprophytic.
C: Parasitic. D: Symbiotic.

14. **How many princple layers are present in human stomach wall?**

A: 1 B: 2
C: 3 D: 4

15. **Pepsin, protein digesting enzyme sets best pH:**

A: 3 B: 4.5
C: 2 D: 6

16. **The following reaction occurs in the human alimentary canal.**

starch -> enzyme -> products, What is the enzyme and the product?

A: Acid, Glucose B: Alkali, Energy
C: Amylase, Maltose D: Bile, Amino acid

17. **___________ is activated to ______________, by enterokinase/ enteropeptidase enzyme secreted by the linning of duodenum.**

A: Trysinogen,trypsin B: Pepsinogen,pepsin
C: Pepsinogen,trysin D: Chymotrypsinogen,chymotrypsin

18. **Which type of feeding is seen in hydra?**

A: Scraping. B: Filter.
C: Seizing and swallowing. D: Tentacular.

19. **Trypsinogin is converted into trypsin by the activity of:**

A: Goblet cells B: Absorbtive cells
C: Enteropeptidase D: Enterokinase

20. **Which organ in humans plays the most important role in the selection of food?**

A: Stomach B: Esophagus
C: Tongue D: Nose

GASEOUS EXCHANGE
TEST 1

1. **About 70-85% CO_2 is carried in blood as :**

A: Carboxy Hb B: Freely as CO_2
C: With proteins in plasma D: As bicarbonate

2. **Iron contaning pigment present in muscle fiber is?**

A: Myoglobin B: Hemoglobin
C: Biliverdin D: Bilirubin

3. **Hemoglobin is ?**

A: Lipid in nature B: Protein in nature
C: Carbohydrate in nature D: Lipoprotein in nature

4. **During inspiration diaphragm moves ?**

A: Downward B: Upward
C: Inward D: Outward

5. **Skin of earth worm is rich in ?**

A: Capillaries B: Sweat glands
C: Hair follicle D: Sebaceous glands

6. **Respiration occurs at how many levels?**

A: 2 B: 3
C: 4 D: 5

7. **How many pairs of gills are present in fish?**

A: 1-2 B: 2-3
C: 3-4 D: 4-5

8. **One complete heart beat consist of one systole and one diastole and lasts for :**

A: 0.8 sec B: 0.2 sec
C: 0.4 sec D: 0.5 sec

9. **The wall of trachea contains C shaped structure called?**

A: Cartilagenous rings B: Elastic rings
C: Muscular rings D: None of above

10. **Cellular respiration is a process by which cell utilize oxygen and proteins, and produce?**

A: CO

B: CO_2

C: NO

D: NO_2

11. **In humans complex cartilagenous structure also known as voice box is called?**

A: Nostrils

B: Trachea

C: Pharynx

D: Larynx

12. **The total capacity of lungs is about?**

A: 4 litres

B: 5 litres

C: 6 litres

D: 7 litres

13. **Bronchioles are made up of?**

A: Longitudinal smooth muscle

B: Circular smooth muscle

C: Both longitudinal and circular smooth muscle

D: skeletonal muscle

14. **Stomata are largely present in which part of the plants?**

A: Leaves

B: Old stem

C: Root

D: Flower

15. **The most common respiratory substance as a source of energy is :**

A: Glucose

B: Sucrose

C: Fructose

D: Insulin

16. **Gaseous exchange in frog occurs through ?**

A: Lungs

B: Skin

C: Buccal cavity

D: All of above

17. **Which part of chest cavity is formed by diaphragm?**

A: Roof

B: Medilal wall

C: Floor

D: Lateral wall

18. **In cockroach main trunk communicate with exterior by means of ?**

A: Holes

B: Pores

C: Spiracles

D: Stomata

19. **Exchange of gases in lungs occur through ?**

A: Active transport

B: Passive transport

C: Facilitated diffusion

D: Diffusion

20. **Which one of the following feature is present in Respiratory surface of animals ?**

A: Thick epithelium

B: Smal surface area

C: Extensive capillary network

D: Dryness

TEST 2

1. **Most of the CO_2 in human body is transported as?**

A: Carboxyhaemoglobin

B: Absorbed in plasma proteins.

C: Bicarbonate ion.

D: Corpuscles combined with potassium.

2. **Factor/s affecting oxygen carrying capacity of hemoglobin is/are?**

A: Carbon dioxide

B: Temparature

C: PH

D: All of above

3. **Haemoglobin combines with oxygen to form?**

A: Oxyhaemoglobin

B: Carboxyhaemoglobin

C: Methemoglobin

D: Reduced haemoglobin

4. **In hydra, the exchange of oxygen and carbondioxide takes place through the lining of ?**

A: Digestive cavity

B: Respiratory cavity

C: Skin

D: Mucous membrane

5. **Air spaces comprise how much volume of leaf?**

A: 30%

B: 40%

C: 50%

D: 60%

6. **When carbondioxide level increases, the ability of hemoglobin to hold oxygen ?**

A: Increases

B: Decreases

C: Becomes variable

D: Remains same

7. **Residual air volume of lungs is?**

A: 1/4 litre.

B: 1/2 litre.

C: 1 litre.

D: 1.5 litres.

8. **In birds lungs have developed several extensions known as?**

A: Alveoli

B: Parabronchi

C: Bronchi

D: Air sacs

9. **Absorbing surface of lung is greatly reduced in which disease?**

A: Emphysema

B: Asthama

C: Pneumonia

D: Tuberculosis

10. **The total inside capacity of the lung is __________ for men.**

A: 7 liters

B: 6-7 liters

C: 5 liters

D: 2.5 liters

11. In cockroach spiracles are present on ?

A: Medial side of body

B: Dorsal side of body

C: Ventral side of body

D: Lateral side of body

12. Breathing is what kind of process?

A: Mechanical process

B: Chemical process

C: Biochemical process

D: Electrical process

13. Number of stomata per square centimeter in the leaf of tobacco plant are ?

A: 15000

B: 14000

C: 13000

D: 12000

14. 5% of carbondioxide is carried to lungs ?

A: By serum

B: By plasma protein

C: as bicarbonate ions

D: as carboxyhemoglobin

15. In photo respiration glycine is converted into serine in ?

A: Cytosol

B: Endoplasmic reticulum

C: Mitocondria

D: Nucelus

16. Respiratory system is most efficient in?

A: Humans

B: Frog

C: Fish

D: Birds

17. How many spiracles pair are present in cockroach?

A: 5

B: 10

C: 15

D: 20

18. Which of the following described the movements involved in breathing out?

Movement of ribs, and movement of Diaphragm

A: Ribs down and in diaphragm downwards

B: Ribs down and in diaphragm upwards

C: Ribs up and out diaphragm downwards

D: Ribs up and out diaphragm upwards

19. Oxyhemoglobin in earth worm release oxygen at?

A: Cellular level

B: Organ level

C: Tissue level

D: None of these

20. Airs moves out in expiration due to ?

A: Contraction of intercostal muscles
B: Contraction of diaphragm
C: Active contraction of lungs
D: Passive contraction of lungs

TEST 3

1. **In emphysema alveoli have?**

A: Decreased volume and surface area
B: Increased volume and surface area
C: Decreased volume and increased surface area
D: Increased volume and decreased surface area

2. **Respiratory distress syndrome is common in premature infants with a gestational age of less than?**

A: 9 months
B: 8 months
C: 7 months
D: 6 months

3. **Tuberculosis(TB) is a disorder of respiratory respiratory system caused by?**

A: Mycobacterium laprae
B: Mycobacterium marinium
C: Mycobacterium tuberculosis
D: Mycobacterium kansasi

4. **In cockroach branching system of tubule called tracheae is lined by?**

A: Peptidogylcan
B: Lipoprotein
C: Chitin
D: Glycocalyx

5. **Saturation of hemoglobin at 115 mmHg of oxygen is?**

A: 96%
B: 97%
C: 98%
D: 99%

6. **Which of the following is the functional unit of lungs?**

A: Bronchus
B: Bronchi
C: Bronchioles
D: Air sac

7. **During expiration ribs move?**

A: Downward and outward
B: Downward and inward
C: Upward and outward
D: Upward and inward

8. **In humans, nasal cavities are lined with mucous membrane of ?**

A: Ciliated epithelium
B: Squamus epithelium
C: Transitional epithelium
D: Cuboidel epithelium

9. **Which of the following element in plasma form bicarbonate ion with CO_2 to transport it?**

A: Sodium
B: Potassium

C: Magnesium

D: Calcium

10. **During the act of swallowing larynx is closed by ?**

A: Glottis

B: Epiglottis

C: Vocal cords

D: Mucous flap

11. **In fish, gills surface is ventilated by constant flow of ?**

A: Oxygenated blood

B: Air

C: Water

D: Serum

12. **Human organs which can least withstand anoxia are?**

A: Brain and muscle

B: Skin and muscle

C: Brain and heart

D: Heart and liver

13. **Enzyme present in red blood cells which facilitate the oxygen carrying activity of hemoglobin is?**

A: Phosphodiesterase

B: Carbonic anhydrase

C: Lecithinase

D: Urease

14. **In asthama contraction of bronchioles is caused by the release of?**

A: Serotonin

B: Epinephrine

C: Norepinephrine

D: Histamine

15. **In cockroach how many pairs of spiracles are present in thorax?**

A: 2 pairs

B: 3 pairs

C: 4 pairs

D: 5 pairs

16. **In humans, the muscular air passage lined by mucous membrane is called?**

A: Nostrils

B: Pharynx

C: Larynx

D: Tracheae

17. **Percentage of CO_2 in the air exhaled by humans is?**

A: 0.04 %

B: 2 %

C: 3 %

D: 4 %

18. **The wall of chest cavity is made up of?**

A: Ribs only

B: Intercostal muscles only

C: Ribs and intercostal muscles

D: Ribs and diaphragm

19. **Carcinoma of lung is a?**

A: Malignent tumor

B: Benign tumor

C: Dysplastic growth

D: Metaplastic growth

20. **Lungs are covered with double layred thin membranous sac called?**

A: Meninges
B: Pericardium
C: Pleura
D: Peritoneum

TEST 4

1. **In most animals epithelium which seperates air and blood has thickness of?**

A: 1 cell thick
B: 2 cell thick
C: 3 cell thick
D: 4 cell thick

2. **Amount of carbondioxide in venous blood is?**

A: 40ml/100ml of blood
B: 45ml/100ml of blood
C: 50ml/100ml of blood
D: 54ml/100ml of blood

3. **Percentage of oxygen in the exhaled air by humans is about?**

A: 21%
B: 19%
C: 17%
D: 16%

4. **The number of air sacs in most of the birds are ?**

A: 8
B: 9
C: 10
D: 11

5. **Allergic reaction to pollen ,spore,cold etc is khown as?**

A: Emphysema
B: Asthama
C: Carcinoma
D: Tuberculosis

6. $CO_2 + H_2O \xrightarrow{Carbonic\ anhydrase} ?$

A: HCO_3
B: H_2CO_3
C: H_2O_2 and CO
D: H_2O_2 and CO2

7. **Pigmentation of the skin is due which of the following?**

A: Leucocytes
B: Lymphocytes
C: Monocytes
D: Melanocytes

8. **The simplest monosachride containing keto group is ?**

A: Glyceraldehyde
B: Dihyroxy acetone
C: Glucose
D: Ribose

9. **Which one of the following organism have single circuit heart?**

A: Frog
B: Earth worm
C: Humans
D: Fish

10. **Respiratory pigment in the humans is known as?**

A: Myoglobin
B: Haemoglobin

C: Bilirubin

D: Biliverdin

11. Percentage of oxygen in the inhaled air is?

A: 20%

B: 21%

C: 22%

D: 23%

12. How many molecules of oxygen can combine with iron contaning ring structure in myoglobin?

A: 1

B: 2

C: 3

D: 4

13. At rest the average rate of breathig is?

A: 10-15 times

B: 15-20 times

C: 20-25 times

D: 25-30 times

14. In cutaneous respiration gaseous exchange takes place through?

A: Gills

B: Skin

C: Buccal cavity

D: Lungs

15. Tiny thin walled ducts present in the lungs of birds are called?

A: Alveoli

B: Bronchi

C: Parabronchi

D: Bronchioles

16. What is the residual volume of air which always remain insides the lungs of humans?

A: 3.5 liters

B: 0.5 liters

C: 1.5 liters

D: 5.0 liters

17. Decrease in blood pH has what effect on the oxygen bound to haemoglobin?

A: It increases

B: It decreases

C: It remains same.

D: It may result in increase or decrease both depending on other conditions.

18. With increase in temperature the oxygen carrying capacity of blood?

A: Increases

B: Decreases

C: Remains same.

D: May increase or decrease.

19. Maximum amount of Oxygen normal human blood can absorb and carry at sea level is about?

A: 10ml/100ml of blood

B: 15ml/100ml of blood

C: 20ml/100ml of blood

D: 25ml/100ml of blood

20. Which of the following disease results in the breakdown of alveoli?

A: Asthma

B: Tuberculosis

C: Cancer

D: Emphysema

TRANSPORT

TEST 1

1. **Exchange of material in the capillaries takes place through?**

A: Active transport

B: Endocytosis

C: Intracellular space

D: All of the above

2. **The right atrium of human heart receives the deoxygenated blood through which of the following?**

A: Aorta

B: Pulmonary artery

C: Pulmonary veins

D: Venae cavae

3. **What is the location of Sinoatrial (S-A) node in the human heart?**

A: Lower end of right atrium.

B: Upper end of right atrium.

C: Lower end of left atrium.

D: Upper end of left atrium.

4. **In human heart, atrias are filled with the blood during?**

A: Diastole

B: Atrial systole

C: Ventricular systole

D: Extrasystole

5. **Which one of the following protein causes blood clotting?**

A: Pepsinogen

B: Immunoglobulin

C: Fibrinogen

D: Clabulin

6. **In arteries, muscular tissue is present in which layer?**

A: Outer layer

B: Middle layer

C: Inner layer

D: All the layers

7. **After a fatty meal, the fat globules make up ______% of lymph?**

A: 0.2 %

B: 0.5 %

C: 1 %

D: 2 %

8. **In phloem which one of the following is directly involved in the transportation of organic solutes?**

A: Companion cell

B: Latex containing cell

C: Sieve elements

D: Parenchyma cell

9. **Wall of the heart is composed of how many layers?**

A: 2 layers

B: 3 layers

C: 4 layers

D: 5 layers

10. **Oxygenated blood is supplied to the human body through?**

A: Aorta
B: Vena cava
C: Pulmonary artery
D: Pulmonary vein

11. **Movement of water molecules from a region of higher concentration to the region of lower concentration through a partially permeable membrane is called?**

A: Diffusion
B: Active transport
C: Passive transport
D: Osmosis

12. **Mycorrhizae that are present in the 90% of the failies of flowering plant is a?**

A: Bacteria
B: Amoeba
C: Virus
D: Fungi

13. **Which one of the following organism has no special transport system?**

A: Lizard
B: Planaria
C: Cockroach
D: Earth worm

14. **In birds and mammals pulmonary trunk arises from which of the following?**

A: Right ventricle
B: Left ventricle
C: Auricle
D: Aorta

15. **All reptiles have incompletely partitioned ventricles except?**

A: Lizard
B: Snake
C: Tuatra
D: Crocodile

16. **Mature mammalian red blood cells do not have:**

A: Red colour
B: Nucleus
C: Fluids
D: Haemolglobin

17. **The right atrium of heart usually recieves the ?**

A: Deoxygenated blood
B: Oxygenated blood
C: Filtered blood
D: Non-filtered blood

18. **What is the duration of 1 complete heart beat in the humans?**

A: 0.6 sec
B: 0.7 sec
C: 0.8 sec
D: 0.9 sec

19. **Most ions are taken up by the roots by which of the following processes?**

A: Active transport
B: Passive transport
C: Facilitated diffusion
D: Diffusion

20. **Which of the following cells are the highest in number in the human blood?**

A: Monocytes
B: Red blood cells
C: Platelets
D: Lymphocytes

TEST 2

1. **In human heart, the blood passes from left atrium to left ventricle through?**

A: Tricuspid valve
B: Aortic valve
C: Bicuspid valve
D: Pulmonary valve

2. **The rate of transpiration doubles by every rise of ____ in temperature?**

A: 5 degree centigrade
B: 10 degree centigrade
C: 20 degree centigrade
D: 25 degree centigrade

3. **Which of the following statement about the structure of human heart is correct?**

A: Wall of left ventricle is thicker than that of the right ventricle.
B: Wall of left ventricle is thinner than that of the right ventricle.
C: Wall of left ventricle has same thickness as that of the right ventricle.
D: Walls of the atria are thicker than that of the ventricles.

4. **Strength to the cell wall of xylem is provided by which of the following?**

A: Chitin
B: Peptidoglycan
C: Lignin
D: Keratin

5. **Right atrium is separated from right ventricle by:**

A: Semilunar valve
B: Tricupsid valve
C: Bicupside valve
D: Septum

6. **In the root cells, the cytoplasmic strands that extend through pores in adjacent cell walls are known as?**

A: Microvilli
B: Plasmodesmata
C: Pseudopods
D: Pilli

7. **The human heart is enclosed in a double membranous sac called?**

A: Pericardial cavity
B: Pleural cavity
C: Peritoneal cavity
D: Meninges

8. **Which of the following white blood cells destroy small particle by phagocytosis?**

A: Basophils
B: Eosinophils
C: Lymphocytes
D: Neutrophils

9. **Which vein carry oxygenated blood?**

A: Renal vein
B: Subclavian vein

C: Jugular vein
D: Pulmonary vein

10. In human transport system, the exchange of materials happens in which of the following?

A: Arteries
B: Veins
C: Capillaries
D: All of the above.

11. How much surface area of the root is provided by the root hair?

A: 58%
B: 67%
C: 73%
D: 78%

12. Which of the following is not a function of blood?

A: Transport of gases
B: Maintain body temperature
C: Production of red blood cell
D: Provide immunity

13. All veins carry deoxygenated blood except?

A: Superior vena cava
B: Inferior vena cave
C: Pulmonary veins
D: Hepatic veins

14. Oedema is caused by the salt and water retention by which of the following organ?

A: Liver
B: Spleen
C: Kidney
D: Intestines

15. Imbibation may result in the volume increase of dry seeds by how many times?

A: 100 times
B: 200 times
C: 300 times
D: 400 times

16. The lymphatic vessels of the body empty the lymph into the blood stream at the:

A: Bile duct
B: Subclavian vein
C: Abdominal vein
D: Jugular vein

17. The composition of materials flowing in the phloem has been studied by using which of the following insects?

A: Mosquito
B: Housefly
C: Aphids
D: Tady bug

18. Cuticular transport accounts for approximately what percentage of total transpiration in the plants?

A: 2-4%
B: 5-7%
C: 7-9%
D: 4-6%

1. At very high temperature a hormone abscisic acid is released by which one of the following cells?

- A: Guard cell
- B: Mesophyll cell
- C: Epidermal cell
- D: Xylem cell

2. Sinus venousus in the fish receives which of the following?

- A: Oxygenated blood from body
- B: Deoxygenated blood from body
- C: Oxygenated blood from gills
- D: All of the above.

3. Heparin - a substance that inhibit blood clotting is produced by which of the following cells?

- A: Basophils
- B: Platelets
- C: Monocytes
- D: Eosinophils

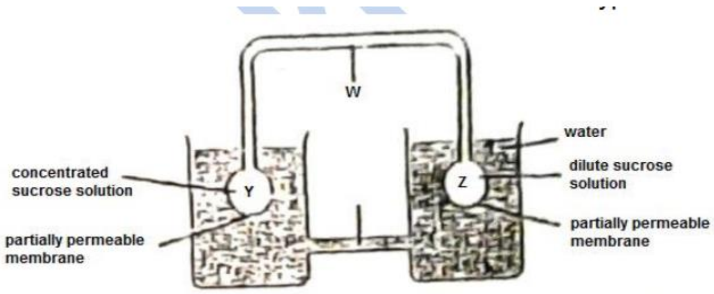
4. The largest lymph duct called thoracic lymph duct drains into ?

- A: Subclavian vein
- B: Renal vein
- C: Pulmonary vein
- D: Hepatic portal vein

5. Right atrium is separated from right ventricle by :

- A: Biscuspid valve
- B: Semilunar valve
- C: Tricuspid valve
- D: Interatrial septum

6. The diagram shows a model to demonstrate the mass flow hypothesis of translocation



In a plant, what are the structures W, X, Y and Z what is the direction of flow of solution along W?

	Phloem	Xylem	Roots	Leaves
A	W	X	Y	Z
B	W	X	Z	Y
C	X	W	Y	Z
D	X	W	Z	Y

A: A
B: B
C: C
D: D

7. Which of the following statement regarding veins is not correct?

A: Veins carry blood from body to heart.
B: Veins have valves.
C: Pulse can be felt on the veins.
D: Veins have few elastic fibers.

8. Different types of white blood cells in the humans are physically distinguished on the basis of which of the following?

A: Color and shape
B: Shape of nucleus and thickness of cell wall
C: Shape of nucleus and density of granules
D: Number of nucleus and density of granules

9. The oxygenated blood from lungs to heart is transported via?

A: Pulmonary artery
B: Coronary artery
C: Pulmonary vein
D: Hepatic artery

10. Mixing of oxygenated and deoxygenated blood occurs in which of the following organisms?

A: Amphibians
B: Fish
C: Reptiles
D: Human

11. What is Tonoplast?

A: Membrane of cell
B: Membrane of mitochondria
C: Membrane of vacuole
D: Membrane of endoplasmic reticulum

12. Leukaemia results from uncontrolled production of which one of the following cells?

A: White blood cells
B: Red blood cells
C: Platelets
D: All of the above

13. Sieve tubes and companion cells communicate with each other through which of the following?

A: Pseudopods
B: Sieve pores
C: Stomata
D: Plasmodesmata

14. Which of the following cell type are the biggest composition of the white blood cells?

A: Basophils
B: Lymphocytes
C: Neutrophils
D: Monocytes

15. In the cell wall of plant cells, which of the following components is not involved in imbibition?

A: Cellulose
B: Pectin
C: Chitin
D: Lignin

16. **Which of the following is a genetically transmitted abnormality of haemoglobin?**

A: Leukaemia
B: Thalassaemia
C: Oedema
D: Leucopenia

17. **Inner side of bean shaped gaurd cell is?**

A: Concave and has a thick wall
B: Concave and has a thin wall
C: Convex and has a thick wall
D: Convex and has a thin wall

18. **Which white blood cells are the least in number amongst the five types of Leucocytes?**

A: Basophils
B: Eosinophils
C: Monocytes
D: Lymphocytes

19. **Interconnected system of arteries, veins and capillaries is present in which of the following?**

A: Hydra
B: Planaria
C: Earthworm
D: Cockroach

20. **Inferior vena cava is formed by the union of which of the following?**

A: 2 venal veins
B: 2 femoral veins
C: 2 hepatic veins
D: 2 iliac veins

TEST 4

1. **What is the normal systolic blood pressure in the human beings?**

A: 110 mmHg
B: 120 mmHg
C: 130 mmHg
D: 140 mmHg

2. **Lenticels are aerating pores present in which part of the plants?**

A: Leaves
B: Bark
C: Roots
D: Flowers

3. **Pure water has the maximum water potential. The value of that maximum water potential is?**

A: Zero
B: 1
C: 10
D: 100

4. **Which of the following has the highest blood pressure?**

A: Arteries
B: Veins
C: Capillaries
D: They all have the same blood pressure.

5. **Carrier molecules involved in facilitating diffusion are?**

A: Lipids
B: Lipoproteins
C: Proteins
D: Carbohydrates

6. **Which one of the following is a precursor of steroid hormones?**

A: Glucose
B: Lipoprotein
C: Phospholipid
D: Cholesterol

7. **In human heart, conduction of electrical impulse from SA node to AV node takes place in how much time?**

A: 0.15 sec
B: 0.16 sec
C: 0.17 sec
D: 0.18 sec

8. **Which of the following statement regarding the four chambers of the human heart is correct?**

A: Two lower atria are thick walled and two upper ventricles are thin walled
B: Two lower atria are thin walled and two upper ventricles are thick walled
C: Two upper atria are thick walled and two lower ventricles are thin walled
D: Two upper atria are thin walled and two lower ventricles are thick walled

9. **What is the normal pH of human blood?**

A: 6.8
B: 7.0
C: 7.2
D: 7.4

10. **Which of the following statement regarding Red Blood Cells (RBCs) is correct?**

A: They can divide through out their life cycle.
B: They can divide only when they are 2 months old.
C: They can divide when they are mature.
D: Mature RBCs do not divide.

11. **The type of agranulocyte that stays in blood for a few hours and then enters tissue and becomes macrophages is called ?**

A: Lymphocytes
B: Monocytes
C: Eosinophil
D: Basophils

12. **The rate of diffusion for sugar movement in the phloem is approximately?**

A: 1 meter per six years
B: 1 meter per seven years
C: 1 meter per eight years
D: 1 meter per nine years

13. **What is the location of Casparian strips?**

A: Cells of xylem
B: Cells of pericycle
C: Epidermal cells of roots
D: Endodermis cells of roots

14. **In the lymphatic system, the thoracic lymph duct opens in which of the following veins?**

A: Juglar vein
B: Superior vena cava
C: Sub clavian vein
D: Inferior vena cava

15. **Plants open their stomata by activitely pumping _____, into the gaurd cells?**

A: Potassium ions
B: Sodium ions
C: Chloride ions
D: Magnesium ions

16. **After their life span of four months is over, the red blood cells are disintegrated in which of the following organs?**

A: Kidneys and lungs
B: Lungs and spleen
C: Pancreas and liver
D: Liver and spleen

17. **The average life span of red blood cells is about:**

A: Two months
B: One months
C: Five months
D: Four months

18. **Which one of the following pathways of water absorption become discontinous in the endodermis?**

A: Vacuolar pathway
B: The sysmplast pathway
C: The apoplast pathway
D: All of the above

19. **What percentage of water pulled up in the leaves is transpired?**

A: 99%
B: 90%
C: 83%
D: 1%

20. **Which one of the following is not a lymphoid organ?**

A: Tonsils
B: Thymus
C: Bone marrow
D: Spleen

IMMUNITY
TEST 1

1. **How many types of immunities are there?**

A: 2
B: 3
C: 4
D: 5

2. **Which of the following diseases affect the immunity system?**

A: Polio
B: Measles
C: Cancer
D: AIDS

3. **In -------- response, B cells produce plasma cells that synthesize antibodies and release in blood and plasma tissue.**

A: Cell Mediated
B: Humoral
C: Hormonal
D: Phototactic

4. **Antigen is a foreign protein or any other molecule which stimulates the formation of:**

A: MHC complex
B: Immunogen
C: Antibodies
D: Mucus

5. **What is the primary function/s of vaccination?**

A: Treat a disease.
B: Strengthen phagocytes.
C: Develop immunity against a disease.
D: All of the above.

6. **In passive immunity which of the following components is injected into the blood ?**

A: Antigen
B: Immunogen
C: Serum
D: Immunoglobulin

7. **Mucous membranes are part of body defence system and they offer**

A: Physical barrier
B: Mechanical barrier
C: Chemical barrier
D: Biological barriers

8. **Immediate protection is obtained from ?**

A: Passive immunity
B: Active immunity
C: Vaccination
D: Natural active immunity

9. **Which of the following forms the plasma cell clone?**

A: Lymphocytes T
B: Lymphocytes B
C: Both Lymphocytes B and T
D: Neither Lymphocytes B nor T

10. **Treatment by using attenuated cultures of bacteria is called :**

A: Chemotherapy
B: Sterilization
C: Antiseptics
D: Vaccination

11. **AIDs is caused by which of the following?**

A: Bacteria
B: Virus
C: Fungus
D: Protozoa

12. **B- Lymphocytes are named because of their relationship to :**

A: Bile Duct
B: Bone Marrow
C: Blood
D: Bursa of fabricus

13. **Which of the following are the components of immune system?**

A: Lymphocytes B
B: Lymphocytes T

C: Monocytes
D: Both A and B

TEST 2

1. **which one of the following is the most numerous white blood cells?**

A: Eosinophils
B: Monocytes
C: Neutrophils
D: Lymphocytes

2. **Antibodies vanish quickly in what kind of immunity?**

A: Active immunity
B: Passive immunity
C: Natural induced immunity
D: Auto immune response

3. **Injection of antisera is an example of?**

A: Active immunity
B: Passive immunity
C: Natural induced immunity
D: Auto immune response

4. **Thymus gland is involved in the maturation of ?**

A: Platelets
B: B-lymphocytes
C: Eosinophils
D: T-lymphocytes

5. **Antibodies are produced against invading cells by:**

A: Lymphocytes
B: Eosinophils
C: Basophils
D: Neutrophils

6. **T-LYMPHOCYTE recognise and attack microorganisms or transplanted organ and tissues. This effect is called :**

A: Cell Mediated response
B: Humoral immunity response
C: Active immunity
D: Passive immunity

7. **What is the main function of immunity?**

A: Help in adaptation.
B: Maintain the internal body environment.
C: Prevent or limit infections.
D: All of the above.

8. **Antibodies are formed by which of the following cells?**

A: T-cells
B: B-cells
C: Macrophages
D: Neutrophils

9. **In passive immunity which of the following components are injected into body?**

A: Immunoglobulins
B: Antigens
C: Immunogens
D: Saliva

10. **What is/are the machanism/s which defend the body against foreign invaders?**

A: Physical barriers
B: Phagocytes
C: Immune system
D: All of above

11. **Which part of antibody recognizes the antigen during immune response?**

A: Heavy part
B: Variable part
C: Light part
D: Constant part

12. **What type of immunity is achieved by injecting antibodies.**

A: Active immunity
B: Passive immunity
C: Artificially induced immunity
D: Naturally induced immunity

13. **Snake bite is treated with which type of immunization?**

A: Active
B: Passive
C: Humoral
D: Specific

14. **T lymphocyte become mature and competent under the influence of:**

A: Bursa of fabricus
B: Thymus gland
C: Spleen
D: Liver

15. **Which part of antibody recognises the antigen during immune response?**

A: Heavy part
B: Light part
C: Constant part
D: Variable part

16. **How many types of antibodies are there?**

A: 2
B: 3
C: 4
D: 5

17. **Two identical light chains and Two identical heavy chains in antibody molecule are linked by:**

A: Disulfied bridges (S-S)
B: Peptide bond
C: Glycosidic bond
D: Ionic bond

18. **Vaccination is an example of what kind of immunity?**

A: Active immunity
B: Passive immunity
C: Natural induced immunity
D: Auto immune response

19. **What is a disadvantage of passive immunity?**

A: It is specific.
B: Response produced is immediate.
C: It is short lived.
D: Consist of antibodies only.

20. **Antigens are often which kind of biological molecules?**

A: Lipids

B: Carbohydrates

C: Complex of carbohydrates and lipoproteins

D: Proteins

TEST 3

1. **Skin and mucous membrane are part of the body defense system and they form the:**

A: Mechanical barriers

B: Physical barriers

C: Chemical barriers

D: Bilological barriers

2. **What kind of immunization shall you reommend for tetanus?**

A: Natural induced immunity

B: Auto immune response

C: Active immunity

D: Passive immunity

3. **Antobodies are produced by which of the following lymphocytes?**

A: A lymphocytes

B: B lymphocytes

C: T lymphocytes

D: B and T lymphocytes

4. **Response of the body against transplanted organ is**

A: Homeostatic response

B: Behavioral response

C: Primary response

D: Cell mediated response

5. **How many types of polypeptide chains are present in lgG antibodies?**

A: 4

B: 5

C: 6

D: 7

6. **In the structure diagram of an antibody molecule which portion is occupied by variable chains?**

A: Lower region

B: Upper region

C: Middle region

D: In between chains

7. **Antigen binding site of antibody consists of?**

A: Constant portion of heavy and light chains.

B: Variable portion of light and heavy chains.

C: Variable portion of heavy chains only.

D: Constant portion of light chains only.

8. **Antibodies are proteins and made up of how many polypeptide chains?**

A: 1

B: 2

C: 3

D: 4

9. Passive immunity is used against

A: Malaria
B: Typhoid
C: Dengue
D: Tetanus

10. Which gland plays an important part in making T-cells immunologically competent?

A: Thyroid gland
B: Pituitary gland
C: Thymus gland
D: Adrenal gland

11. Which of the following statement is true?

A: Humoral immune response involves antibodies while cell mediated response does not involve antibodies.

B: Humoral immune response does not involves antibodies while cell mediated response involve antibodies.

C: Both humoral immune response and cell mediated response involve antibodies.

D: Neither humoral immune response nor cell mediated response involve antibodies.

12. Which one of the following glands is involved in the production of lymphocytes?

A: Pineal
B: Pituitary
C: Thymus
D: Adrenal

13. An antibody molecule contains four polypeptide chains which are linked through ?

A: Hydrogen bond
B: Ionic bond
C: Covalent bond
D: Disulphide bond

14. Which of the following is not a component of cell mediated immunity?

A: Helper T-cells
B: Cytotoxic T-cells
C: Macrophages
D: Plasma cells

TEST 4

1. The immunity in which T-cells recognize the antigen or microorganism is called ?

A: Tissue grafting
B: Phagocytosis
C: Cell mediated immunity / response
D: Humoral immunity / response

2. Lymphocyte B is related with which of the following?

A: Thymus gland
B: Bacteria
C: Bursa of Fabricius
D: None of the above.

EXCERTION & OSMOREGULATION
TEST 1

1. **Main component of flame cells responsible for excretion is ?**

A: Cilia
B: Flagella
C: Flame
D: Fluid

2. **'Cleaning of blood' refers to ?**

A: Hemodialysis
B: Lithotripsy
C: Liposuction
D: Amputation

3. **In cockroaches , nitrogenous wastes are excreted via which structure?**

A: Nephrostome
B: Rectum
C: Skin
D: Anus

4. **Antidiuretic hormone helps in reabsorbtion of water by changing permeability of ?**

A: Proximal tubule
B: Distal tubule
C: Collecting duct
D: Loop of henle

5. **Ascending loop of henle is impermeable to ?**

A: Water
B: Na ions
C: Glucose
D: Drugs

6. **Fever is caused by chemicals produced by cells called ?**

A: Heat shock proteins
B: Pyrogens
C: Aldosterone
D: Toxins

7. **Which of the following is the major hormone released from posterior pituitary?**

A: Aldosterone
B: ADH
C: Prolactin
D: FSH

8. **Freezing temperature kills cells by ?**

A: Super cooling the cytosol
B: Ice crystal formation
C: Degenarating lipids
D: Increasing proportion of unsaturated fatty acids

9. **The mechanism of regulation generaly between organism and its environment of solute and gain and loss of water is called?**

A: Excretion
B: Osmoregulation
C: Coordination
D: Thermoregulation

10. **All useful constituents of glomerular fitrate are reabsorbed in ?**

A: Glomerulus
B: Proximal tubule
C: Loop of henle
D: Collecting duct

11. Plumage fluffing is a ?

A: Structural adaptation
B: Physiological adaptation
C: Behavioral adaptation
D: Psychological adaptation

12. Which of the following is a function of liver ?

A: Storage
B: Synthesis
C: Recycling
D: They are all functions of liver.

13. Basic functional unit of kidney is ?

A: Nephron
B: Pelvis
C: Ureter
D: Cortex

14. Uricotelics include?

A: Fishes
B: Amphibians
C: Mammals
D: Reptiles

15. Reabsorbtion of water by counter current multiplier mechanisms takes place at ?

A: Proximal tubule
B: Distal tubule
C: Collecting duct
D: Loop of henle

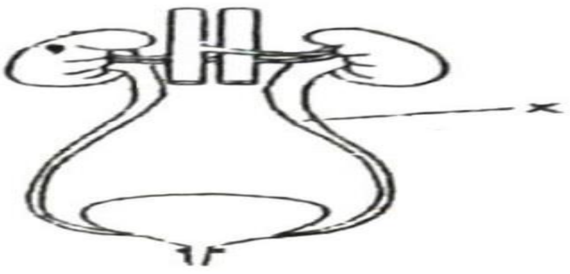
16. Major exretory product in plants in their photosynthetic mode is?

A: Carbon dioxide and water
B: Ammonia
C: Urea
D: Oxygen

17. Which function of liver is responsible for its link with kidneys in excretion?

A: Storage
B: Detoxification
C: Conversion
D: Recycling

The diagram shows the human urinary system.



18. Which substances is not found in the liquid at in x in a healthy person?

A: Glucose
B: Salt

C: Water

D: Protein

19. Which of these is not a heat loss mechanism ?

A: Radiation

B: Evaporation

C: Sweating

D: Shivering

20. Isotonic environment results in normal cell because?

A: External environment is more concentrated than internal

B: Internal environment is more concentrated than external

C: Concentration of both internal and external environment is different

D: Concentration of both internal and external environment is same

TEST 2

1. Major role of sweat glands is ?

A: Excretion of nitrogenous wastes

B: Thermoregulation

C: Protection against microorganism

D: Detoxification

2. Which of these is not a structural adaptation for heat regulation ?

A: Panting

B: Plumage fluffing

C: Sweat glands

D: Pelage

3. What will be the adaptation to regulate osmotic balance in fresh water environment?

A: Discharging excess water

B: Excreting more salt

C: Excreting less water

D: Both B and C

4. Which one of the following is the main nitrogenous waste product in humans?

A: Urea

B: Ammonia

C: Salts

D: Uric acid

5. Reabsorption of useful constituents takes place in?

A: Proximal Tubule

B: Distal tubule

C: Bowman's Capsule

D: Glomerulus

6. How many iodine atoms are present in thyroxine?

A: 3

B: 4

C: 2

D: 5

7. Amount of water for excretion of 1g of nitrogen as uric acid is?

A: 500ml

B: 100ml

C: 50ml

D: 1ml

8. **What are the 2 types of dialysis ?**

A: Hemodialysis and perineal dialysis
B: Thoracic and peritoneal dialysis
C: Peritoneal and perineal dialysis
D: Hemodialysis and peritoneal dialysis

9. **Aldosterone helps in conservation or active absorbtion of ?**

A: Sodium
B: Calcium
C: Potassium
D: Bicarbonate ion

10. **Ammonia is the main excretory product in which animals?**

A: Freshwater animals
B: Birds
C: Insects
D: Terrestrial mammals

11. **Which part of the plants is called excretophores ?**

A: Trunk
B: Branches
C: Leaves
D: Stalk of bulb

12. **Blood enters the glomerulus through:**

A: Afferent arteriole
B: Efferent arteriole
C: Renal vein
D: Renal artery

13. **Maximum reabsorbtion takes place in which part of the nephron?**

A: Distal tubule
B: Villi
C: Cortical tissue
D: Proximal tubule

14. **Anhydrobiosis is main characteris tics of ?**

A: Marine animals
B: Freshwater animals
C: Terrestrial animals
D: Both A and B

15. **Ejection of milk from mammary glands is under the control of which hormone?**

A: Androgen
B: Oxytocin
C: Progesterone
D: Estrogen

16. **Alpha cells of pancreas secrete a hormone called :**

A: Glucagons
B: Insulin
C: Gastrin
D: Renin

17. **Which part of the trees store strange chemicals deposited in old xylem and no longer used for water transport?**

A: Ebony
B: Pholem
C: Secondary xylem
D: Roots

18. In oaks and maples, extreme low temperature is tolerated by ?

A: Ice crystal formation in protoplasm
B: Super cooling of cytosol
C: Increasing proportion of unsaturated fatty acids
D: Decreasing proportion of unsaturated fatty acids

19. Response of cell when placed in a hypertonic solution will be?

A: Turgid cell
B: Normal cell
C: Shrunken cell
D: Cell burst

20. Amount of water required to excrete 1g of nitrogen as urea is?

A: 500ml
B: 100ml
C: 50ml
D: 1ml

TEST 3

1. Which one of the following is a steroid hormone?

A: Glucagon
B: Thyroxine
C: Epinephrine
D: Oestrogen

2. Which of the following is capable of varying degrees of endothermic heat production but generally do not regulate their body temperature within a narrow range?

A: Reptiles
B: Frogs
C: Bats
D: Flying insects

3. In nephron, the cup shaped swelling around ball of capillaries is called ?

A: Bowmann's capsule
B: Glomerulus
C: Loop of henle
D: Vasa recta

4. In cactus, the main photosynthetic organ is?

A: Stem
B: Roots
C: Leaves
D: Horns

5. The gonadotrophic hormone of anterior pituitary are

A: Prolactin, TSH, Somatotrophin hormone
B: FSH, LH , Prolactin
C: ACTH, LH, FSH
D: LH, FSH, TSH

6. Saliva and urine for evaporative cooling is used by which of the following?

A: Dogs
B: Bats
C: Reptiles
D: Toads

7. Which one of the following is responsilble for the production of concentrated urine?

A: Proximal tubule
B: Distal tubule
C: Bowman's capsule
D: Glomerulus

8. In excess water supply, reabsorbtion of water is reduced by ?

A: Release of antidiuretic hormone
B: Inhibition of ADH release
C: Counter current mechanism
D: Both A and C

9. Most marine invertebrates are?

A: Osmoconformers
B: Hypertonic as compared to environment
C: Hypotonic as compared to environment
D: Isotonic

10. Loss of salt in freshwater animals as in fishes is compensated by?

A: Active uptake of salts by gills and skin
B: Retention of urine in body
C: Preference of salt containing food
D: Both A and C

11. Aldosterone is basicaly involved in the uptake of ?

A: Sodium
B: Chloride
C: Glucose
D: Water

12. With each heart beat what percentage of total blood is supplied to the kidneys?

A: 10%
B: 1%
C: 20%
D: 30%

13. What are three components of mechanism of heomostatic regulations?

A: Sensory, motor and associative neurons
B: Receptors, control center and effectors
C: CNS, peripheral nervous system and diffused nervous system
D: Cerebrum, cerebellum and pons

14. Those nephrons which are present along the border of cortex and medulla are called :

A: Juxtamedullary nephrons
B: Cortical nephrons
C: Internal nephrons
D: The tissue of cortex

15. Metabolism of purines and pyramidines doesn't produce?

A: Hypoxanthine
B: Uric acid
C: Allantoin
D: Creatinine

16. Lower internal salt concentration than sea water is maintained in most?

A: Marine invertebrates
B: Cartilage fishes
C: Bony fishes
D: Both B and C

17. When water is in short supply increased water retention occurs through :

A: Corticol Nephrons
B: Proximal Convulated tubule
C: Juxtamedullary nephrons
D: Tissue of cortex

18. What is the most likely response of hypothalamus to the rising temperature?

A: Activate sekeletal muscles
B: Divert blood from skin to deeper tissues
C: Close sweat glands
D: Dilate skin bood vessels

19. Cells of Bowmann's capsule lining are called ?

A: Podocytes
B: Astrocytes
C: Fibroblasts
D: Nephrocytes

20. Plants respond to cold stress by ?

A: Increasing proportion of unsaturated fatty acids
B: Decreasing proportion of saturated fatty acids
C: Decreasing water uptake
D: Increasing metabolism

TEST 4

1. ADH is released from :

A: Anterior Pituitary
B: Posterior Pituitary
C: Hypothalamus
D: Thalamus

2. Filtration occurs at which part of nephrons ?

A: Glomerulus
B: Loop of henle
C: Collecting tubule
D: Convulated tubule

3. Conservation of water in the kidney is done by ?

A: Counter current mechanism
B: Hormonal mechanism
C: Conservation mechanism
D: Both A and B

4. Which product of liver is responsible for blood clotting ?

A: Glycogen
B: Cholestrol
C: Bile
D: Plasma protein

5. The term thermoregulation implies to?

A: Fixed internal temperature
B: Regulation of solutes
C: Regulation of water
D: Maintainace of internal temperature within tolerable range

6. In nephrons, counter current multiplier occurs at :

A: Loop of henle
B: Collecting duct

C: Bowman's capsule
D: Glomerulus

7. **Thyroxine deficiency in adults results in a condition called :**

A: Cretinism
B: Hypothyroidism
C: Thyrotoxicosis
D: Myxedema

8. **What is responsible for interstitial fluid concentration as it goes from cortex to medulla ?**

A: Release of ADH
B: Counter current multiplier
C: High filtration pressure
D: Excessive water intake

9. **Breaking of kidney stones into tiny pieces by shock waves is called ?**

A: Dialysis
B: Lithotripsy
C: Liposuction
D: Leprotemy

10. **Where are waste products deposited in conifers?**

A: Leaves which fall in autumn
B: Stalk of bulb
C: Trunk
D: Secreted into soil

11. **When filtrate passes from descending loop of henle, which constituent is reabsorbed the most ?**

A: Na ions
B: Glucose
C: Water
D: Drugs

12. **Active pumping of Na^+ occurs at which part of nephron?**

A: Proximal tubule
B: Ascending limb of loop of Henle
C: Descending limb of loop of Henle
D: Collecting duct

13. **Metanephridium is excretory system in ?**

A: Cockroach
B: Flatworms
C: Earthworms
D: Vertebrates

14. **Which one of the following parts of excretory system in human act as Counter-Current Multiplier?**

A: Kidney
B: Cortex
C: Medulla
D: Loop of Henle

15. **Property of a system in which variables are regulated so that internal conditions remain stable and relatively constant is called?**

A: Osmoregulation
B: Functional organization
C: Hypothalamism
D: Homeostasis

16. **Primary structure for eliminating wastes in humans is ?**

A: Kidney
B: Liver

C: Skin

D: Both A and B

17. **Which part of kidney is specificaly instrumental in production of concentrated urine?**

A: Cortical nephrons

B: Juxtamedullary nephrons

C: Pelvis

D: Ureter

18. **Which one is not synthesized by liver ?**

A: Plasma proteins

B: Urea

C: Lipoprotein

D: Blood cells

19. **Heat shock proteins prevent enzyme degeneration by ?**

A: Breaking enzymes into smaller pieces

B: Embracing them

C: Attaching them to organelles

D: Increasing there activities

20. **Collecting tubules of nephrons open into ?**

A: Cortex

B: Pelvis

C: Ureter

D: Medulla

SUPPORT & MOVEMENTS
TEST 1

1. **Which one of the following is not a growth movement?**

A: Epinasty

B: Hyponasty

C: Geotropism

D: Nutation

2. **Which of the following muscle is an antagonistic member of Biceps brachii?**

A: Bracheoradialis

B: Brachialis

C: Extensor muscle of the forearm

D: Triceps

3. **Which of the following plays the major role in providing support to young herbaceous part of the plant?**

A: Epidermis with higher turgor pressure

B: Cells of cortex

C: Collenchyma cells

D: Sclerenchyma cells

4. **Which of the following is a ball and socket joint?**

A: Elbow

B: Knee

C: Shoulder

D: Both B and C.

5. **Elbow joint is an eample of?**

A: Fibrous joint

B: Ball & socket joint

C: Cartilaginous joint

D: Hinge joint

6. **Psychological inability to contract muscles is known as?**

A: Muscle disorder.

B: Muscle fatigue.

C: Tetany

D: Cramp.

7. **Which one of the following is a bone of axial skeleton?**

A: Femur

B: Rib

C: Radius

D: Clavide

8. **Skeletal muscle has how many parts?**

A: 5

B: 4

C: 3

D: 2

9. **An increase in plant girth due to activity of _________ is called secondary growth?**

A: Cork cambium

B: Pith

C: Vascular cambium

D: Both A and C

10. **Which of the following animal has a hydrostatic skeleton?**

A: Earthworm

B: Round worm

C: Tape worm

D: Pin worm

11. **Each end of muscle is attach to the bone by which of the following?**

A: Ligament

B: Tendon

C: Fascia

D: Connective tissue

12. **Muscles are made up of many cells which are referred as?**

A: Myofilaments

B: Myofibrils

C: Sarcolemma

D: Muscle fibers

13. **Locomotion in planaria is due to which of the following?**

A: Jet propulsion

B: Accordion like movement

C: Cilary movement

D: None of above

14. **How many vertebrae are present in coccyx?**

A: 7

B: 12

C: 5

D: 4

15. **The pigment which stores oxygen in muscles is ?**

A: Hemoglobin

B: Myoglobin

C: Myosin

D: Actinomyosin

16. **Rigor mortis i.e stiffening of body after death results from which of the following?**

A: Accumulation of rigid protein molecule in sarcoplam

B: Unavailability of ATP, which is necessary to break the link between actin and myosin

C: Decrease in body temprature after death

D: All of the above

17. Collagen fibers of bones are harden by the deposition of which of the following?

A: Calcium phosphate

B: Calcium carbonate

C: Calcium sulphate

D: Both A and B

18. Which of the following attach bone to bone?

A: Tendons

B: Ligaments

C: Skeletal muscle

D: Any of the above dependent on the bones.

19. Which of the following is the largest bone in the human body?

A: Femur

B: Sternum

C: Scapula

D: Humerous

20. Which of the following statements about fractures in old age is incorrect?

A: They are more common than in adult age

B: Occur as a result of bone being hin and weak

C: Due to good blood supply it results in quick healing

D: All of them are correct.

TEST 2

1. According to sliding filament theory, when muscle fibers are stimulated by nervous system, which of the following changes occur?

A: I-bands shorten

B: H-zone become visible

C: Z-lines move further apart

D: A-bands broaden

2. How many bones are involved in the formation of each half of pelvic girdle?

A: 4 bones

B: 3 bones

C: 2 bones

D: 1 bones

3. Endoskeleton consist of bone and cartilage is secreted by?

A: Ectoderm

B: Endoderm

C: Mesoderm

D: All of the above

4. Roots of the plant show which of the following behavior?

A: Positive phototropism and negative geotropism

B: Negative phototropism and positive geotropism

C: Negative tactic movement and positive tropic movement

D: None of these

5. **How many bones are there in adult human body?**

A: 206 B: 208
C: 248 D: 270

6. **How many bones are present in the wrist?**

A: 4 bones B: 6 bones
C: 8 bones D: 10 bones

7. **Which of the following cause most of the increase in the thickness of stem ?**

A: Primary xylem B: Primary phloem
C: Secondary xylem D: Secondary phloem

8. **The proximal bone in hip joint is?**

A: Tibia B: Fibula
C: Tarsal D: Femur

9. **Which of the following contributes to muscle fatigue?**

A: Relative deficit of ATP. B: Accumulation of lactic acid.
C: Ionic imbalance. D: All of the above.

10. **Which one of the following is plantigrade?**

A: Rabbit B: Horse
C: Carnivor D: Monkey

11. **The length of the myofibril from one Z-band to the next is describe as:**

A: Sarcolemma B: Sarcoplasm
C: Muscle fibre D: Sarcomere

12. **Which part of the skeletal muscle moves the bone?**

A: Origin B: Insertion
C: Belly D: Both A and B.

13. **What is the diameter of thick filament myosin?**

A: 7nm B: 8nm
C: 16nm D: 10-100um

14. **Which of the following is the first process after a bone fracture?**

A: Remodeling B: Bony callus formation.
C: Callus formation. D: Hematoma formation.

15. **A smallest contractile unit of muscle contraction called sarcomere is the area between two?**

A: H-zone
B: M-line
C: Z-line
D: Z-line and H-line

16. **Which of the following joint has the highest degrees of movement?**

A: Hinge joint
B: Cartilaginous joint
C: Fibrous joint
D: Ball and Socket joint.

17. **Vascular cambium initially appears as actively dividing cells between?**

A: Primary xylem and secondary xylem
B: Primary xylem and secondary phloem
C: Primary xylem and primary phloem
D: Secondary xylem and secondary phloem

18. **Which of the following is the most swift form of the locomotion?**

A: Plantigrade
B: Digitigrade
C: Unguligrade
D: Both B and C.

19. **Human and mammalian skeleton can be divided into two parts, axial skeleton and:**

A: Appendicular skeleton
B: Exo skeleton
C: Endo skeleton
D: Hydrostatic skeleton

20. **Tetany is caused by which of the following?**

A: Hypocalcemia
B: Hypercalcemia
C: Clostridum tetani
D: Hypophosphatemia

TEST 3

1. **The most important function of troponin is?**

A: To cover the binding sites on actin molecule
B: To bind with tropomyosin
C: To bind with Ca ions
D: All of the above

2. **Insertion of brachialis is in which of the following?**

A: Ulna
B: Radius
C: Shaft of radius
D: Olecronon process of ulna

3. **First vertebra of cervical region of vertebral column is known as:**

A: Axis
B: Sacral
C: Thoracic
D: Atlas

4. **In human the number of __________ vertebrae is 7.**

A: Cervical
B: Thoracic
C: Lumber
D: Sacrum

5. **Which of the following bones are present in the palm of the human hand?**

A: Carpals
B: Metacarplas
C: Phalanges
D: Both A and B

6. **Which of the following muscles have only single nuclei cells?**

A: Smooth muscles
B: Cardiac muscles
C: Skeletal muscles
D: All of the above.

7. **Which one of the following cartilage is the most abundant in human body?**

A: Elastic
B: Chondrous
C: Fibro
D: Hyaline

8. **Which of the following statement is true about the bands of sarcomere?**

A: Both A band and I band are anisotropic.
B: Neither A band nor I band is anisotropic.
C: Only I band is anisotropic
D: Only A band is anisotropic.

9. **Which of the following defines Ecdysone?**

A: An enzyme that digest endocuticle during an arthropodal ecdysis
B: A newly formed exoskeleton in arthropods
C: A harmone that regulates moulting in arthropods
D: None of the above

10. **Which one of the following cells is responsible for the formation of bone?**

A: Osteoblast
B: Osteoclast
C: Osteocytis
D: None of these

11. **During high metabolic activity, approximately what percentage of lactic acid is broken aerobically?**

A: 80%
B: 60%
C: 40%
D: 20%

12. **One of the following is a sign of tetanus?**

A: Flaccid paralysis
B: Stiffness of jaw and neck muscles
C: Tremors
D: Muscles pain

13. **During which of the following process in bone fracture repair, osteoblasts and osteoclasts migrate inward and multiply rapidly?**

A: Hematoma formation
B: Callus formation
C: Bony callus formation.
D: Remodeling.

14. **Which of the following is not true about cardiac muscles?**

A: Their cells have multiple nuclei.
B: Their cell shape is branched.
C: Their contraction is spontaneous.
D: They have regular stripes.

15. **When calcium ions are released from sarcoplasmic recticulum they bind with ________ during muscle contraction:**

A: Troponin
B: Tropomyosin
C: Sarcolemma
D: Cytosol's ions

16. **Which of the following statement about an arthropod exoskeleton is incorrect?**

A: It permits gaseous exchange.
B: It contains joints, it form joints.
C: It provide muscle attachment.
D: They lack sensation.

17. **The repeated protein pattern of myofibrils is called?**

A: Sarcomere
B: Zyomere
C: Sarcolemma
D: Cross Bridges

18. **Which of the following fins in the fish body are paired?**

A: Dorsal and ventral
B: Pectoral and pelvic
C: Tail fins
D: All of the above

19. **Which of the following muscles have regular stripes?**

A: Smooth
B: Cardiac
C: Skeletal
D: Both A and C.

20. **Which of the following cells are involved in soft callus formation?**

A: Fibroblast and osteoblast
B: Osteoclast
C: Osteobalst and osteoclast
D: Chondrocytis

TEST 4

1. **How many muscles are there in the human body?**

A: 250
B: 350
C: 550
D: 650

2. **Waterproof surfaces such as cuticle of leaf and protective covering of an insects body is :**

A: Phospholipids

B: Waxes

C: Terpenoids

D: Acyl glyceroids

3. **Which one of the following is not a paired facial bone?**

A: Nasal

B: Palatine

C: Maxilla

D: Vomer

4. **Epinasty is controlled by which of the following?**

A: Gibberellins

B: Abscisins

C: Auxins

D: Both B and C.

5. **In which of the following joint the muscles are arranged in the same plane as that of the joint?**

A: Between tibia and fibula

B: Between clavicle and sternum

C: Between humerus and scapula

D: Between femur and tibia

6. **Microcephaly, the small sized skull is caused by?**

A: Genetic factors

B: Harmonal factors

C: Nutritional factor

D: None of these

7. **Fin thread like extension of cell membrane is called**

A: Cilia

B: Flagella

C: Pilli

D: Hair

8. **Which one of the following is an example of a non-elastic connective tissue?**

A: Ligaments

B: Tendon

C: Muscles

D: None of these

9. **Each muscle fibre is surrounded by a membrane which is called:**

A: Sarcolemma

B: Twitch fibre

C: Sarcomere

D: Capsule

10. **The place of attachment of leaf with the shoot is called?**

A: Pith

B: Pulvinus

C: Pit

D: Ecdysone

11. **Which of the folowing vertebrates have fish like body?**

A: Reptiles

B: Aves

C: Amphibians

D: Mammals

12. **The length of myofibril from one Z-band to the next one is called ?**

A: Sarcomere
B: Sarcolemma
C: Sarcoplasm
D: Muscle fibre

13. Which of the following animals uses setae and muscles for their locomotion?

A: Cockroach
B: Snail
C: Earthworm
D: Star fish

14. Which of the following bones are present in pectoral girdle?

A: Clavicle
B: Scapula
C: Suprascapula
D: All of the above.

15. Which of the following hormone is responsible for bone weakening in older women?

A: Progesterone
B: Estrogen
C: Parathyroid hormone
D: Calcitonin

16. Epicuticle part of exoskeleton is made up of which of the following?

A: Glycocalyx
B: Waxy lipoprotien
C: Polycasscahrides
D: Glycocalyx

17. What is the main function of cross bridges in myosin?

A: They provide support to muscles
. B: They produce lactic acid.
C: They link thick and thin myofilaments together during expansion.
D: They link thick and thin myofilaments together during contraction.

18. The calcium ion released during muscle fibre contraction attach with ?

A: Myosin
B: Actin
C: Tropomyosin
D: Troponin

19. Which of the following may be a reason for a cramp?

A: Deficit of ATP.
B: Drop in PH
C: High blood sugar level.
D: Electrolyte depletion.

20. When more energy is required for muscle contraction then that energy can be produced by ____________ as a secondary source.

A: Glucose
B: Fructose
C: Phosphocreatine
D: Lactic acid

COORDINATION & CONTROL
TEST 1

1. Overactivity of sympthatic nervous system causes ?

A: Disturbance in vision
B: Constipation
C: Decrease in blood pressure
D: Increase in heart rate

2. Which part of central nervous system controls reflex action below neck?

A: Hindbrain
B: Hypothalamus
C: Spinal cord
D: Brain stem

3. Which one of the following produces Gastrin and secretin ?

A: Pancreas
B: Ovary
C: Adrenal gland
D: Gut

4. Deficiency of insulin leads to ?

A: Diabetes mellitus
B: Diabetes insipidus
C: Diabetic ketoacidosis
D: All of above

5. Which of the following is not a part of the hind brain?

A: Cerebral cortex
B: Medulla
C: Pons
D: Cerebellum

6. What is a normal resting membrane potential of a Neuron?

A: -50mv
B: -60mv
C: -70mv
D: -80mv

7. Which part of the neuron contain nissl's granules?

A: Axoplasm
B: Mylein sheath
C: Dendrite
D: Soma

8. Which one of the following plant hormone is the only promoter of leaf senescence?

A: Gibberellins
B: Cytokinins
C: Auxins
D: Abscisic acid

9. Which of the following transmits nerve impulse from receptor to central nervous system?

A: Sensory neuron
B: Motor neuron
C: Associative neuron
D: All of the above

10. Which one of the following glands is refered to as master gland ?

A: Parathyroid gland
B: Thyroid gland
C: Adrenal gland
D: Pituitary gland

11. Which of the following has no central nervous system?

A: Hydra
B: Man

C: Planaria
D: None of these

12. **How many pairs of cranial nerves are present in humans?**

A: 10
B: 11
C: 12
D: 13

13. **Which of the following are responsible for the detection of changes in environment?**

A: Receptors
B: Neuron
C: Effectors
D: All of these

14. **Gibberellins may be substituted for ____ light ,therefore promote flowering in long day plants?**

A: White
B: Red
C: Blue
D: Green

15. **The right and left cerebral hemispheres are connected by a thick band of nerve fibres called?**

A: Medulla
B: Corpus Callosum
C: Pons
D: Hippocampus

16. **Concentration of cell bodies of neurons in the peripheral nervous system are called?**

A: Cerebral
B: Glands
C: Cardinals
D: Ganglia

17. **Normal action potential of a neuronal cell is?**

A: +50mv
B: +60mv
C: +70mv
D: +80mv

18. **Which one of the following is the largest part of the human brain?**

A: Thallamus
B: Cerebellum
C: Medulla oblongata
D: Cerebrum

19. **Which structures respond when they are stimulated by impulses coming through motor neurons?**

A: Receptors
B: Pesponses
C: Effectors
D: Transduction

20. **Reticular formation is present in?**

A: Forebrain
B: Midbrain
C: Hindbrain
D: Spinal cord

1. **Neurosecretory cells are present in which part of brain?**

A: Hypothalmus
B: Midbrain
C: Pons
D: Cerebellum

2. **The part of brain which controls breathing, heart rate and swallowing is:**

A: Cerebrum
B: Cerebellum
C: Hypothalamus
D: Medulla

3. **Which fibres take impulse towards the cell body?**

A: Dendrites
B: Nissl's granules
C: Cytoplasm
D: Golgi apparatus

4. **Which of the following connects the spinal cord to the brain?**

A: Spino connector
B: Pons
C: Vortex
D: Medulla

5. **Which of the following is the function of glucagon ?**

A: Glycogen --> glucose
B: Glucose --> glycogen
C: Glucose --> lipid
D: Glucose --> proteins

6. **Which one of the following is a Principle mineralo-corticoid?**

A: Cortisol
B: Cortisone
C: Aldosterone
D: Androgens

7. **The process which manifest itself by adaptive changes in individual behaviour as a result of experience is called?**

A: Instinct
B: Learning
C: Behaviour
D: Habituation

8. **Which one of the following receptor perceive the sensation of cold and warmth?**

A: Free nerve endings
B: Stray endings
C: Undifferentiated endings
D: Electromagenatic receptors

9. **The number of cranial nerves in humans is:**

A: 12 pairs
B: 31 pairs
C: 24 pairs
D: 62 pairs

10. **L-dopa or levodopa is used to get some relief from:**

A: Epilepsy
B: Parkinson's disease
C: Alzheimer's disease
D: Dementia

11. **Which of the following are effectors?**

A: Muscles
B: Gland
C: Nissel granules
D: Both A & B

12. **Alpha cells of islets of langerhans secrete hormone called:**

A: Glucocorticoid
B: Insulin
C: Glucagon
D: Aldosterone

13. **Biorhythms shows periodicity of about ?**

A: 20 hours
B: 22 hours
C: 24 hours
D: 26 hours

14. **Vasopressin amd oxytocin are released from the:**

A: Placenta
B: Ovary
C: Anterior pituitary
D: Posterior pitutary

15. **The structures which respond when they are stimulated by impulse coming through motor neuron are:**

A: Effectors
B: Receptors
C: Responsers
D: Transducers

16. **Addison's disease is caused by the destruction of ?**

A: Adrenal cortex
B: Pituitary adrenal axis
C: Adrenal medulla
D: Hypothalamus

17. **Which of the following of part of central nervous system is present inside the vertrbral column?**

A: Hind brain
B: Brain stem
C: Spinal cord
D: Medulla

18. **Chlorosis i.e yellowish hue on the leaves results from ?**

A: Intense sunlight
B: Deficiency of chlorophyll
C: Deficiency of water in soil
D: All of these

19. **Hormones produced by adrenal medulla are?**

A: Adrenaline and Nor adrenaline
B: Insulin and glucagon
C: Cortisol and aldosterone
D: Gastrin and secretin

20. **Decline in brain function occurs in which of the following disease?**

A: Parkinson disease
B: Epilepsy
C: Alzheimer's disease
D: All of the above

TEST 3

1. Which of the following group of hormones is made up of amino acid and its derivatives ?

A: Vasopressin and antidiuretic hormone
B: Epinephrine and non epinephrine
C: Oestrogen and testosterone
D: Insulin and glucagon

2. What is the chemical nature of auxin ?

A: Indole propionic acid
B: Indole carboxylic acid
C: Indole acetaldehyde
D: Indole acetic acid

3. A neurological condition characterized by involuntary tremors, diminished motor activity and rigidity is called ?

A: Epilepsy
B: Parkinson's disease
C: Alzheimer's disease
D: Cerebellar tumours

4. Which of the following is true about the active membrane potential in the neurons?

A: Inner side is more positive than the outer side.
B: Inner side is more negative than the outer side.
C: Inner and outer sides have same charge.
D: Active membrane potential is same as the rest membrane potential.

5. Which one of the following part act as thermoregulator?

A: Cerebrum
B: Cerebellum
C: Thalamus
D: Hypothalamus

6. Myelin sheath surrounding neuron fibers is primarily made of ?

A: Carbohydrates
B: Protein
C: Fats
D: Lipids

7. Which of the following hormone cause delay in aging of fresh leaf crops?

A: Auxin
B: Cytokinin
C: Ethene
D: Abscisic acid

8. Which of the following parts of the brain controls precise muscular movement?

A: Cerebrum
B: Cerebellum
C: Thalamus
D: Medulla

9. Hormone/s produce by hypothalamus is/are?

A: Thyroid stimulating hormone
B: Oxytocin and antidiuretic hormone
C: Oxytocin and somatotrophin hormone
D: Antidiuretic hormone

10. What is the major constituent of birth control pill ?

A: Oestrogen
B: Androgens
C: Progesterone
D: Secretin

11. Which part of the brain control intelligence?

A: Thalamus
B: Hypothalamus
C: Cerebellum
D: Cerebral cortex

12. Which one of the following is effect of sympathetic nervous system?

A: Constriction of bronchi
B: Decrease in heart rate
C: Promotion of digestion
D: Dilated pupil

13. Insufficient secretion of iodothyroxine in adults causes?

A: Cretinism
B: Myxoedema.
C: Goiter
D: Exopthalmic goiter

14. High levels of Aluminium may contribute to the onset of ?

A: Parkinson's disease
B: Epilepsy
C: Alzeihmer's disease
D: Gonorrhea

15. Hormones produce their actions by ?

A: Regulating enzymatic reactions
B: Initiating enzymatic reactions
C: Initiating chemical reactions
D: All of the above

16. Which of the following statement is true regarding resting membrane?

A: Sodum ions have higher concentration inside neurons.
B: Sodium ions have higher concentration outside neurons.
C: Potassium ions have same concentration inside and outside neurons.
D: Potassium ions have higher concentration outside neurons.

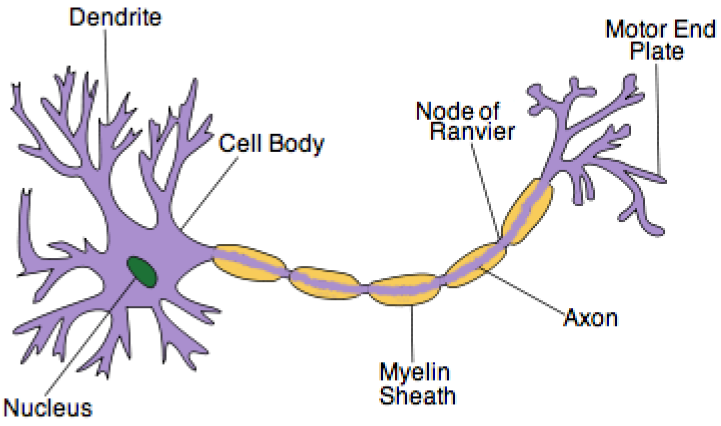
17. Cell membrane under resting condition is impermeable to all the ions except ?

A: Na^{+}
B: K^{+}
C: Mg^{+2}
D: Ca^{+2}

18. Which of the following statement regarding the resting membrane potential is correct?

A: Outer surface of the neuron is more positive
B: Inner surface of the neuron is more positive
C: At rest potential, neurons are equally charged inside and outside.
D: At rest potential inner and outer surface continuously switch between positive and negative charge.

19. The figure below shows what kind of neuron?



A: Sensory
B: Associative
C: Motor
D: None of the above

20. What is the primary function of meninges?

A: Transmit neuro signals.
B: Control potential across neurons.
C: Provide nutrition to the brain and the spinal cord.
D: Protect the brain and the spinal cord.

TEST 4

1. Which of the following is controlled by hypothalamus?

A: Menstrual cycle
B: Water balance
C: Body temperature
D: All of the above.

2. Hippocampus plays an important part in?

A: Intelligence
B: Feeling of pleasure.
C: Learning
D: Touch sensation

3. What type of sensory structure carrying the touch sensations are present in papillae extending into ridges of the fingertips?

A: Nerve ending at the base of hair
B: Meissner's corpuscles
C: Pacinian corpuscles
D: Thermoreceptors

4. The part of neroun fibers which conducts impulses away from the cell body is:

A: Dendron
B: Dendrites
C: Peripheral branch
D: Axon

5. Which of the following statement is not true?

A: Relative abundance of receptors differ greatly.
B: Hair end organs receive touch stimulus.
C: Receptors are distributed evenly over the entire surface of the body.
D: Receptors in the skin are the endings of sensory neurons.

6. Which of the following ions are involved in the transmission of nerve impulse?

A: Ca^{++}

B: K^{+}

C: Mg^{++}

D: Na^{+}

7. The cytoplasmic fibres that takes impulses away from cell body are called?

A: Dendrites

B: Axons

C: Cytoplasmic carrier

D: Both axons and dendrites may take impulse away from the cell body.

8. Grey matter of spinal cord consist of?

A: Myelinated fibres and cell bodies

B: Non-myelinated fibres and cell bodies

C: Myelinated fibres only

D: Cell bodies only

9. Which of the following is a correct sequence of reflex arc?

A: Receptor -> Motor neuron -> Sensory neuron -> Effector

B: Sensory neuron -> Motor neuron -> Effector -> Receptor

C: Receptor -> Sensory neuron -> Effector -> Motor neuron

D: Receptor -> Sensory neuron -> Motor neuron -> Effector

10. Chemically how many types of hormones are there?

A: 2 types

B: 3 types

C: 4 types

D: 5 types

11. What type of sensation is caused by nociceptors?

A: Touch

B: Temperature

C: Pressure

D: Pain

12. Onset of epilepsy is usually before the age of ?

A: 20

B: 30

C: 40

D: 50

13. Which of the following is the function of glucagon hormone?

A: Glucose --------> lipids

B: Glucose -----------> Proteins

C: Glucose -------> Glycogen

D: Glycogen -------> Glucose

14. Abscisic acid promotes flowering in short day plants and inhibits in long day plants. Which of the following is anatgonistic to abscisic acid in terms of flowering?

A: Gibberellins

B: Cytokinins

C: Auxins

D: Ethene

15. Neurotransmitter secreted at synapse outside CNS is :

A: Dopamine

B: Polypeptide

C: Androgen

D: Acetylcholine

16. Parkinson's disease is caused by death in brain area that produces?

A: Serotonin

B: Epinephrine

C: Dopamine

D: Histamine

17. Microscopic gaps between the neurons are called ?

A: Transmitters

B: Synapses

C: Pores

D: Nodes

18. Gastrin is a hormone which is produced by the:

A: Liver

B: Adrenal gland

C: Mucosal lining of intestine

D: Pyloric region of stomach

19. Excess of somatotrophin hormone in early life leads to ?

A: Acromegaly

B: Gigantism

C: Dwarfism

D: Small stature

20. Hormone produced by median lobe of pituitary gland is

A: Melanophore stimulating hormone

B: Antidiuretic hormone

C: Somatotrophin hormone

D: Thyroid stimulating hormone